VERTIV™

NetSure™ -48 VDC to -58 VDC Output Converter Upgrade Kit

Installation Manual

Kit Specification Number: 60028248, 60031305, 60031673
For Use in Spec. No. 582137000ZZ001 and 582137000ZZ007 Power Systems

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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 Vertiv™ NetSure™ -48 VDC to -58 VDC Converter Upgrade Kit Installation Instructions

1.1 Kit Description

1.1.1 General

These instructions provide step-by-step procedures to field install these kits into Vertiv™ NetSure™ 512 Power System (Spec. Nos. 582137000ZZ001 and 582137000ZZ007). Installation of these kits in other equipment should not be attempted.

1.1.2 Kit P/N 60028248

This kit provides components to change converter module mounting positions for Spec. No. 1C48241500 (-48 VDC to +24 VDC) converter modules to mounting positions for Spec. No. 1C48582000P3 (-48 VDC to -58 VDC) converter modules. It also provides components to change the breaker positions in the distribution cabinet from +24 VDC to -58 VDC. This procedure will change the 582137000ZZ001 or 582137000ZZ007 into a 582137000500 power system. It also assumes that if a DC Generator input kit is installed it is in positions 10-13 of the top row. A backout procedure is also provided.

1.1.3 Kit P/N 60031305

This kit provides components to convert the row 1 (bottom row) distribution panel to -58V positions.

1.1.4 Kit P/N 60031673

This kit provides components to revert the row 1 (bottom row) distribution panel back to -48V operation.

1.2 Restrictions

You MUST have an NCU Controller in your system to use the Spec. No. 1C48582000P3 (-48 VDC to -58 VDC) converter modules.

Your system may contain a DC Generator Breaker Kit (see Figure 1.1). If a DC Generator Breaker Kit is installed, DO NOT use these positions for -48 VDC or -58 VDC distribution. If a DC Generator Breaker kit is installed, use of kit P/N 60031305 is NOT permitted.

Figure 1.1 DC Generator Breaker Kit
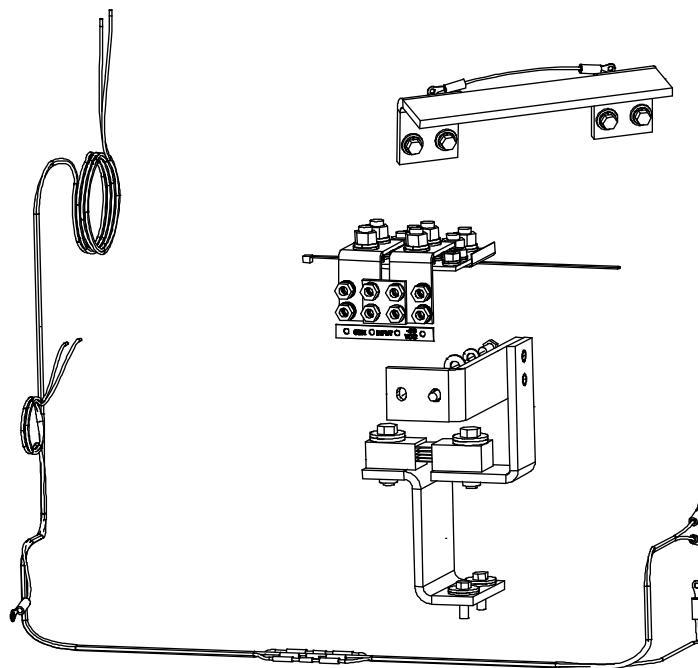
Your system may contain a DC Generator Bridge Kit (see Figure 1.2) which bridges the -48 VDC or +24 VDC distribution around the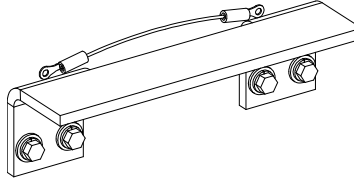 generator breaker. If a Generator Bridge Kit is installed, you may need to modify the procedures in this document to accommodate these situations. Contact Vertiv's Technical Assistance Center (TAC) for specific modifications if this is the case.

Figure 1.2 DC Generator Bridge Kit

1.3   Kit Contents

Table 1.1, Table 1.2, and Table 1.3 lists the items furnished as part of the kits. Before installing the kits, check the items furnished against those listed to ensure that there are no shortages.

1.3.1   Kit P/N 60028248

Table 1.1 Kit P/N 60028248 Contents

P/N	Description	Qty.
60028735	Use Only -58 VDC Converters Caution Label	12
10019532	Critical Load Distribution Position Label (4-Position)	6
10019867	Critical Load Distribution Position Label (5-Position)	1
534800	Plug Button	5
10019986	Rectifier/-58 VDC Converter Module Mounting Positions Label	1
60027894	Field Retrofitted for Use with -58 VDC Converters Nameplate Label	1
552423	Hook-and-Loop Fastener (factory attached to storage pouch)	2
150661	USB Memory Device with Storage Pouch (contains new NCU configuration, NCU Clean-up package, and customer documentation)	1

1.3.2   Kit P/N 60031305

Table 1.2 Kit P/N 60031305 Contents

P/N	Description	Qty.
228557100	1/4-20 Hex Nut	2
215111100	1/4" Lock Washer	8
520763	1/8 X 1/16 Round Insulator Spacer	2
521047	1/4 X 9/32 Round Insulator Spacer	2
227643600	5/16-18 X 1 Bolt	4
227640500	1/4-20 X 7/8 Bolt	4
227640300	1/4-20 X 5/8 Bolt	2
227640800	1/4-20 X 1-1/4 Bolt	2
214203300	5/16" Flat Washer	4
214112100	3/8" Flat Washer	2
214203100	1/4" Flat Washer (0.875 OD, 0.063 Thick)	2
214200700	1/4" Flat Washer (0.625 OD, 0.065 Thick)	8
555280	Bottom Row Input Busbar	1
555827	BLVD Shelf Busbar	1
60031304	-58V Row 1 Busbar Link	1
60031132	-58V LVLD Busbar Link	1
60031306	-58V Bus Support Bracket	1
214824900	5/16" Belleville Lock Washer	4
214824700	1/4" Belleville Lock Washer	2
60028292	Load Distribution Position Label (6-Position) (-58V Critical / -58V Non Critical)	5

1.3.3   Kit P/N 60031673

Table 1.3 Kit P/N 60031673 Contents

P/N	Description	Qty.
534800	Plug Button	5
555282	LLVD Busbar Link	1
10019557	Critical Load Distribution Position Label (6-Position) (-58V / -48V)	5
214200700	1/4" Flat Washer	2
215111100	1/4" Lock Washer	2
227640500	1/4-20 x 7/8" Bolt	2

1.4 Tools and Material Required

Table 1.4 lists the items required to install this kit.

Table 1.4 Tools and Material Required

Description
7/16" Socket
Small Flat-Blade Screwdriver
#2 Phillips Screwdriver
Torque Wrench
Spec. No. 1C48582000P3 (-48 VDC to -58 VDC) Converter Modules (as required)

1.5 Installation Procedure

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

The following is a step-by-step procedure to install the kit. The procedure has been written for ease of use and to minimize the possibility of contact with potentially hazardous energy. This procedure should be performed in the sequence given, and each step should be completely read and fully understood before performing that step. Observe all "Important Safety Instructions" starting on page v and also those presented in the following procedure. As each step of the procedure is completed, the box adjacent to the respective step should be checked. This will minimize the possibility of inadvertently skipping any steps. If the step is not required to be performed for your site, also check the box to indicate that it was read.
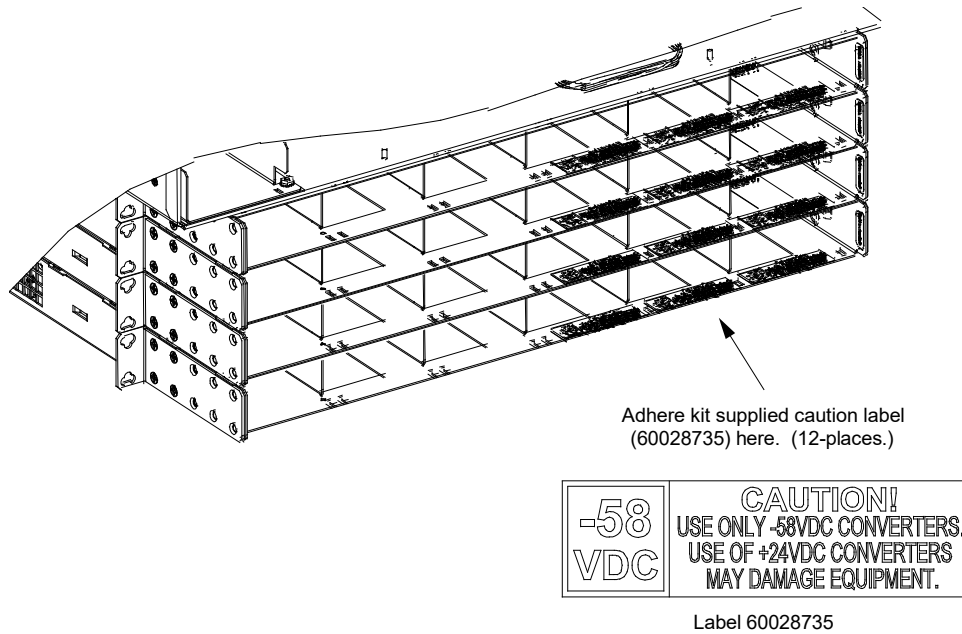
1.5.1   Kit P/N 60028248

Procedure

⚠️ **DANGER!** This procedure is performed on a LIVE system. Observe the "Important Safety Instructions" starting on page v and those listed in the power system manual.

[ ] 1.   Performing this procedure may activate external alarms. Do one of the following. If possible, disable these alarms. If these alarms cannot be easily disabled, notify the appropriate personnel to disregard any future alarms associated with this system while the procedure is being performed.

[ ] 2.   If your system has an ACU+ controller, replace it with an NCU controller.

[ ] 3.   If your system ORIGINALLY had an NCU controller, refer to "Backing Up the NCU Configuration" on page 25 and backup the controller configuration.

[ ] 4.   Ensure that there are no loads/cables connected to the +24V circuit breaker positions. Upon completion of this upgrade, the system will no longer support +24V loads. If there are loads tied to the +24V positions, these will need to be removed and connected to a separate +24V system.

[ ] 5.   Remove all existing +24 VDC output converter modules from the module mounting shelves.

[ ] 6.   Clear the converter Communication and/or Lost alarms via the controller, if applicable. Via the controller front panel main screen, navigate to the Settings Icon in the upper left of the main screen and press the ENT key. Enter your username and password. Use the arrow keys to scroll to the Alarm Settings Menu and press the ENT key. Use the arrow keys to scroll to the ClrAllConvCommF and press the ENT key. Use the arrow keys to scroll to the ClrConvCommFail and press the ENT key. Use the arrow keys to scroll to the Clear Conv Lost and press the ENT key.

[ ] 7. Adhere kit supplied "Use Only -58 VDC Converters" caution label (60028735) to each of the twelve (12) module mounting slots shown in Figure 1.3. Orient the labels between the two (2) rectangular slots used for the converter module locking tabs. Align front edge of label to front edge of shelf. **Do Not** cover the converter module locking tab slots.

Figure 1.3 Adhere 60028735 Labels

Adhere kit supplied caution label
(60028735) here. (12-places.)

-58 VDC CAUTION!
USE ONLY -58VDC CONVERTERS.
USE OF +24VDC CONVERTERS
MAY DAMAGE EQUIPMENT.

Label 60028735

[ ] 8. Remove the shield from the top distribution panel by loosening the screws securing it and lifting the shield up and out (see Figure 1.4).
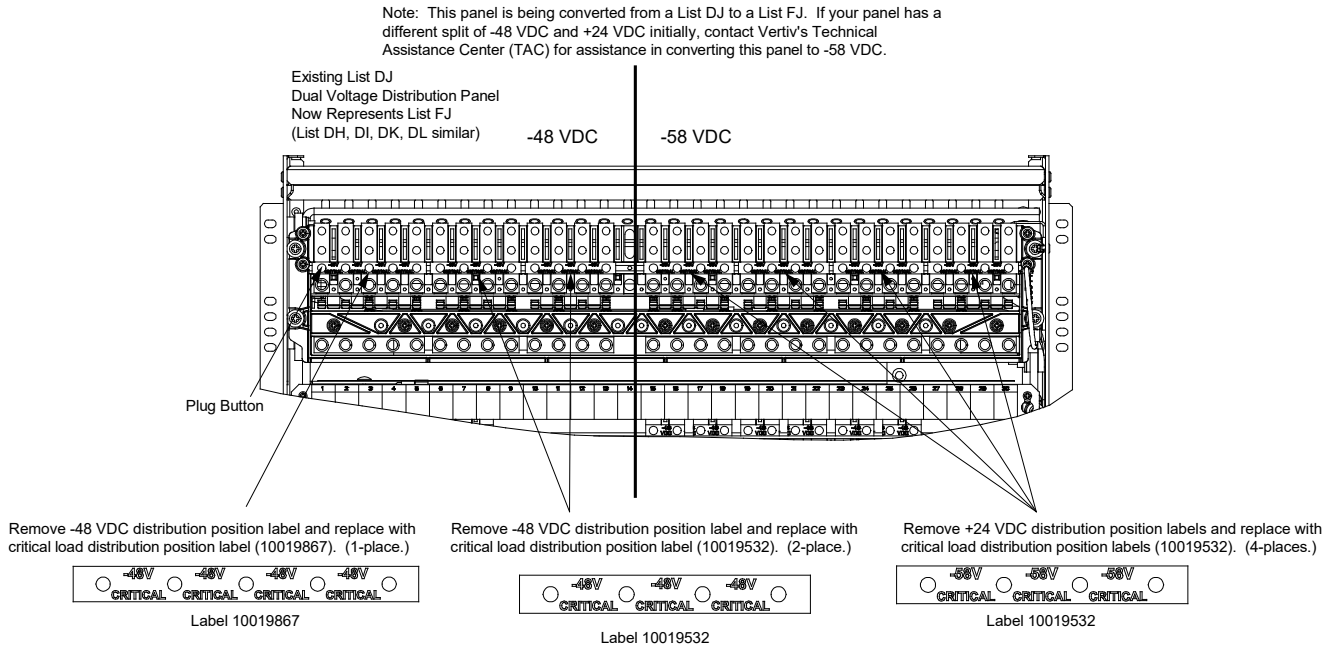
Figure 1.4 Remove Shield

Shield
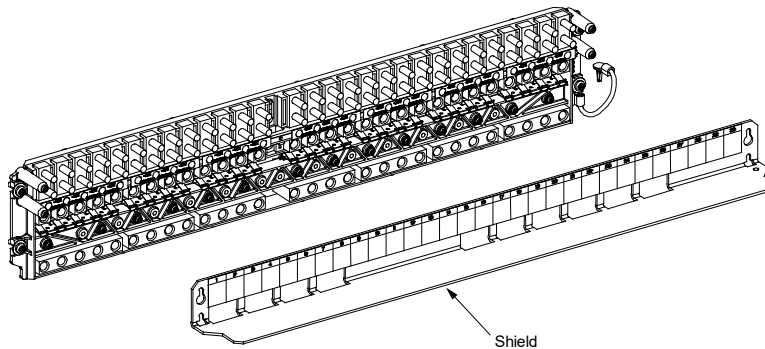
[ ] 9. Install P/Ns 10019532 and 10019867 labels by following the procedure in Figure 1.5.

Remove the plug buttons securing the +24 VDC distribution position labels located on the top distribution panel. Save the plug buttons after removing them as they will be needed in later steps. Remove the labels. See Figure 1.5. Save these +24 VDC distribution position labels in case the system needs to be converted back for use with +24 VDC output converters. Install kit supplied "Critical" load distribution position labels (10019532) in the places the +24 VDC labels were removed from. Orient so the -58V side is visible. Secure the labels with the plug buttons previously removed. See Figure 1.5.

Remove the plug buttons securing the -48 VDC distribution position labels located on the top distribution panel. Save the plug buttons after removing them as they will be needed in later steps. Remove the labels. See Figure 1.5. Save these -48 VDC distribution position labels in case the system needs to be converted back for use with +24 VDC output converters. Install kit supplied "Critical" load distribution position labels (10019867 and 10019532) in the place the -48 VDC labels were removed from. Orient so the -48V side is visible. Secure the labels with the plug buttons previously removed. See Figure 1.5. If a DC Generator input kit is installed in positions 10-13 then do not change the label on those (4) positions.

Figure 1.5 Install 10019532 and 10019867 Labels

Note: This panel is being converted from a List DJ to a List FJ. If your panel has a different split of -48 VDC and +24 VDC initially, contact Vertiv's Technical Assistance Center (TAC) for assistance in converting this panel to -58 VDC.

Existing List DJ
Dual Voltage Distribution Panel
Now Represents List FJ
(List DH, DI, DK, DL similar)

-48 VDC   -58 VDC

Plug Button

Remove -48 VDC distribution position label and replace with critical load distribution position label (10019867). (1-place.)
Label 10019867

Remove -48 VDC distribution position label and replace with critical load distribution position label (10019532). (2-place.)
Label 10019532

Remove +24 VDC distribution position labels and replace with critical load distribution position labels (10019532). (4-places.)
Label 10019532

[ ] 10. Replace the top distribution panel shield.

[ ] 11. Adhere kit supplied module position label (10019986) to the OSP cabinet the power system is installed in. See Figure 1.6.

Figure 1.6 Adhere 10019986 Label

Adhere kit supplied module position
label (10019986) to OSP cabinet.

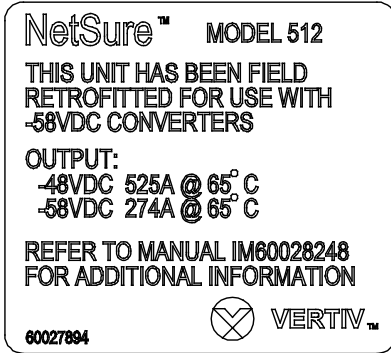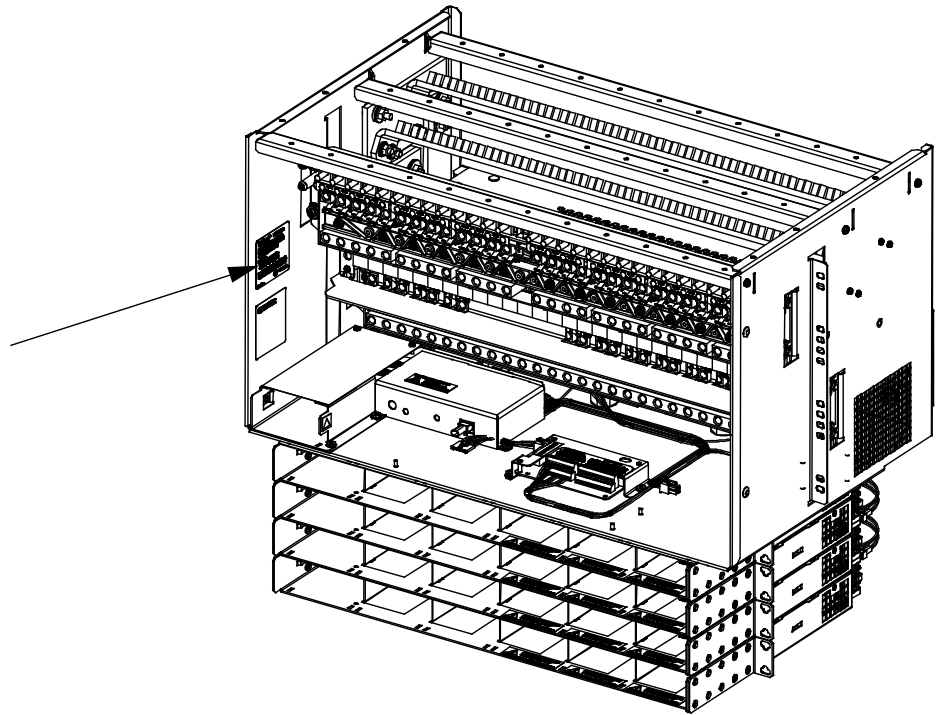| RECTIFIER SLOT DESIGNATION (FRONT VIEW)					
SHELF 1	RECTIFIER 1	RECTIFIER 2	RECTIFIER 3	RECTIFIER 4 OR -58VDC CONVERTER 1	-58VDC CONVERTER 2	-58VDC CONVERTER 3
SHELF 2	RECTIFIER 1	RECTIFIER 2	RECTIFIER 3	RECTIFIER 4 OR -58VDC CONVERTER 1	-58VDC CONVERTER 2	-58VDC CONVERTER 3
SHELF 3	RECTIFIER 1	RECTIFIER 2	RECTIFIER 3	RECTIFIER 4 OR -58VDC CONVERTER 1	-58VDC CONVERTER 2	-58VDC CONVERTER 3
SHELF 4	RECTIFIER 1	RECTIFIER 2	RECTIFIER 3	RECTIFIER 4 OR -58VDC CONVERTER 1	-58VDC CONVERTER 2	-58VDC CONVERTER 3

10019986 REV 1X

Label 10019986

[ ] 12. Adhere kit supplied nameplate label (60027894) above the existing nameplate label. See Figure 1.7.

Figure 1.7 Adhere 60027894 Label

Adhere kit supplied nameplate label (60027894) here.

NetSure™   MODEL 512
THIS UNIT HAS BEEN FIELD RETROFITTED FOR USE WITH -58VDC CONVERTERS
OUTPUT:
 -48VDC 525A @ 65° C
 -58VDC 274A @ 65° C
REFER TO MANUAL IM60028248 FOR ADDITIONAL INFORMATION
⊗ VERTIV™
60027894

Label 60027894

[ ] 13. Reverse the wiring to J3-3 (DI2-) and J3-4 (DI2+) on the IB2 board (connect existing wire in J3-3 to J3-4; and connect existing wire in J3-4 to J3-3). See Figure 1.8.

Figure 1.8 IB2 Board
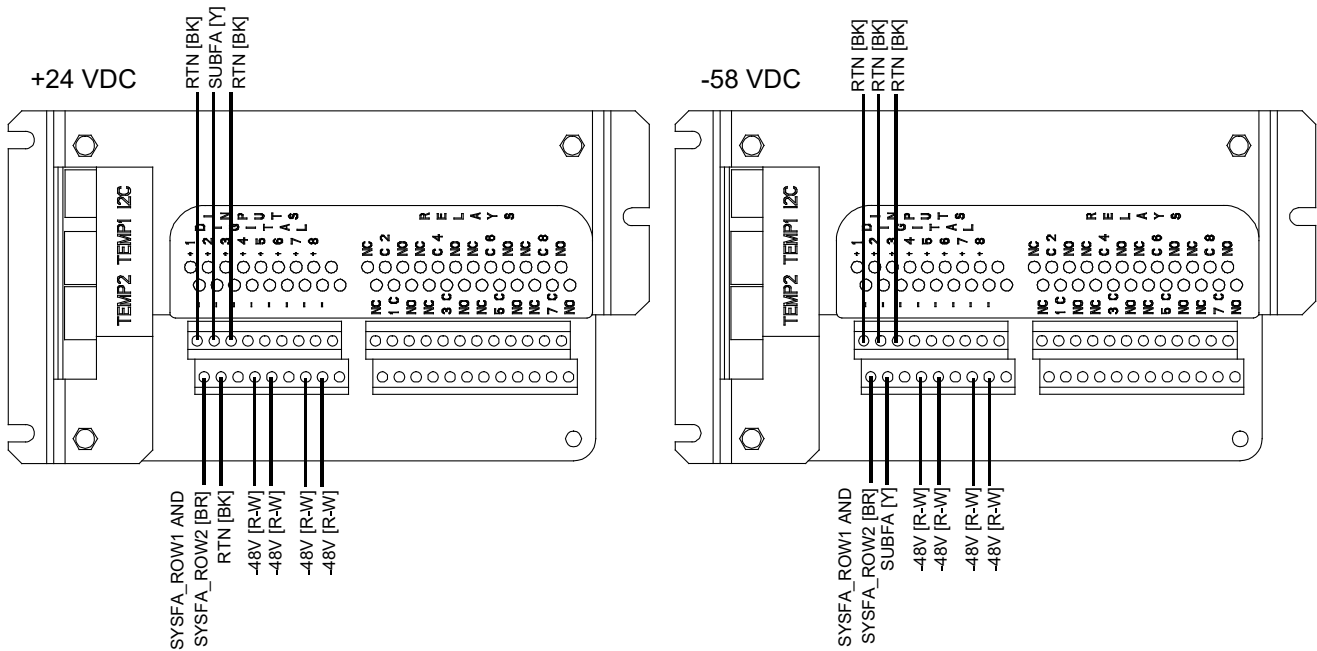
[ ] 14.   Update the controller configuration file as follows.

🔍 **NOTE!** *When using the Web interface to update an NCU containing firmware that is revision level 1.2.51B or less to version 1.2.60B or greater, the NCU requires its flash memory to be refreshed. The Clean-up Tool package frees enough flash so that the controller can be updated to 1.2.60B or greater while maintaining the Web user interface.*

Starting with version 1.2.60B and later, software is loaded using a different strategy, so this clean-up process is not needed once a controller is updated to 1.2.60B. See the main page (Figure 1.9) to determine software version.

a)   Copy the Application "All" package file and the Clean-up Tool package (ncu_cleanup_V1.1.tar or later) located on the kit-supplied USB drive to your computer. The name of the Application "All" package file ends in either .tar or .tar.gz. The name of the Clean-up Tool package ends in .tar.

b)   Log in to the Web user interface page.

c)   Click "Advanced Settings." See Figure 1.9.

Figure 1.9 Advanced Settings

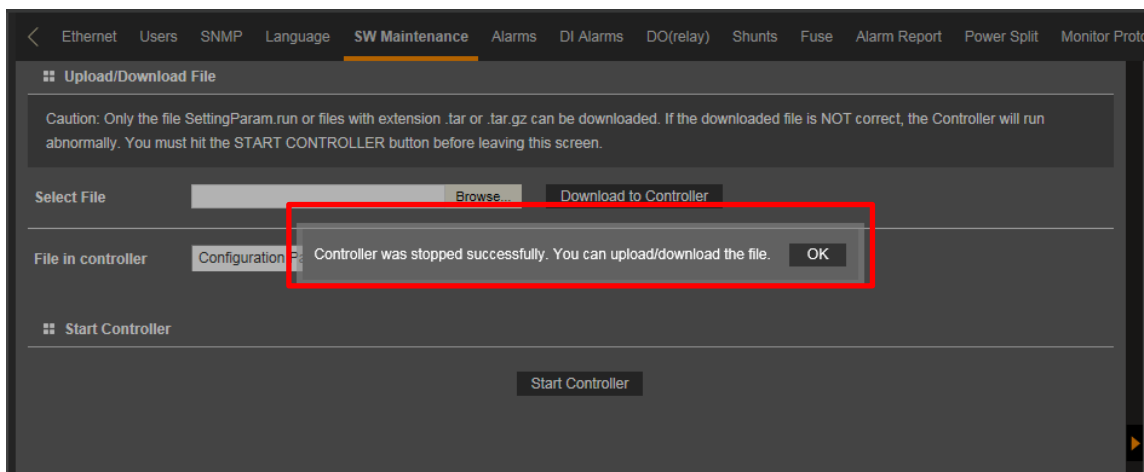Proprietary and Confidential © 2024 Vertiv Group Corp.

d) Go to the SW Maintenance tab. Click on "Stop Controller." See Figure 1.10.

Figure 1.10 Stop Controller
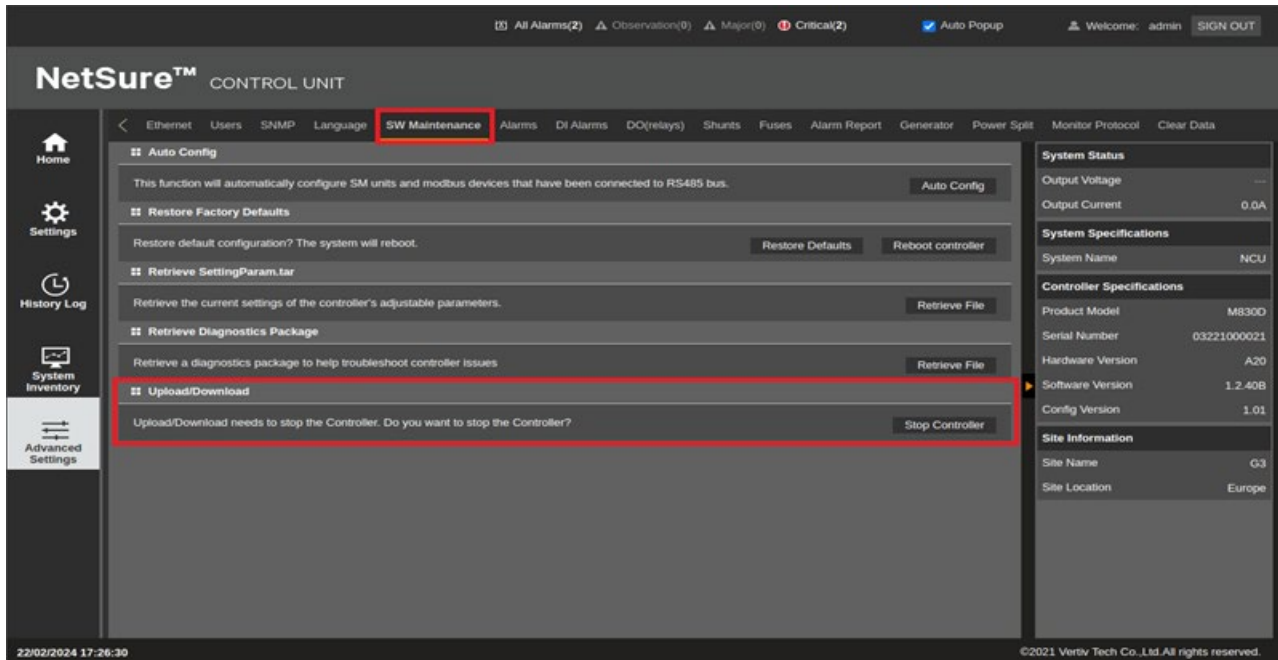
e) After the following window opens, click "OK." See Figure 1.11.

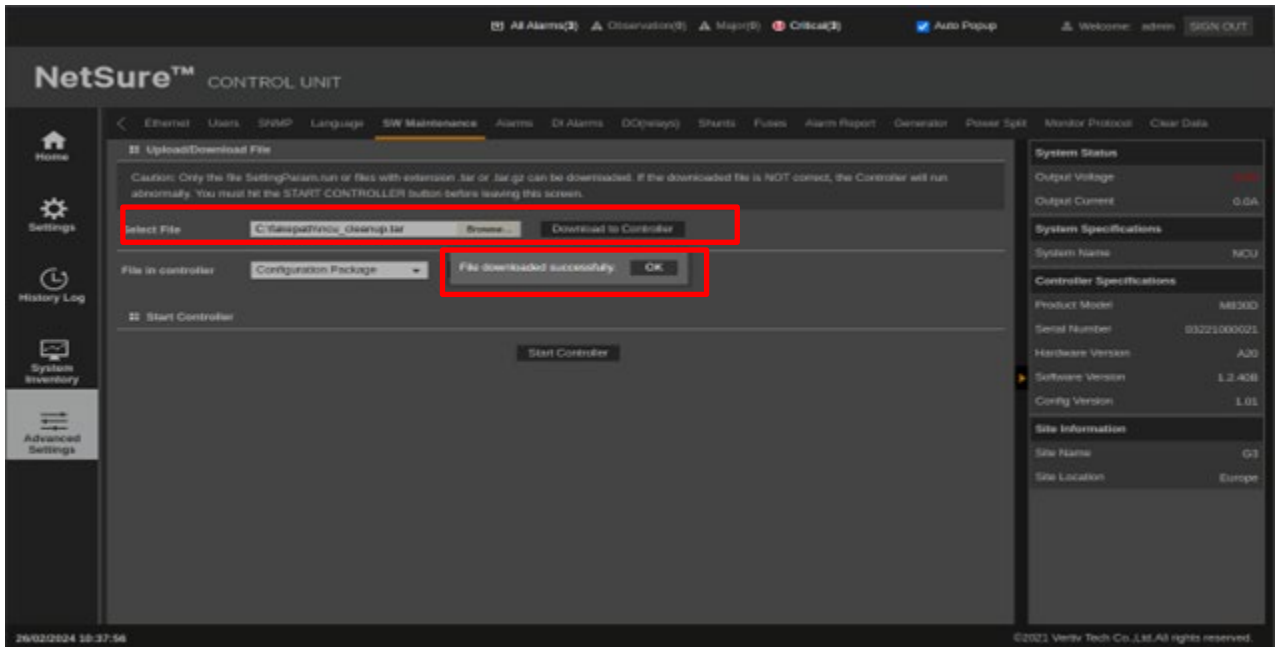**Figure 1.11 Upload/Download - Controller Stopped**

ALERT! Never navigate away from this Web page without first clicking on "Start Controller" after loading the appropriate file(s). If you do, you will not have Web access. A manual system reset is required to restore Web access.

NOTE! *If the original software version is 1.2.60B or higher, go to step k.*

f) After the following window appears (Figure 1.12), browse and select the Clean-up Tool package (ncu_cleanup_V1.1.tar or later) you copied earlier to your computer. Click "Download to Controller." This process may take several minutes. The following screen displays, indicating a successful upload. Click "OK" and then click "Start Controller" to reboot the NCU. This process could take several minutes.

Figure 1.12 Download Clean-Up Tool Package and Start Controller

g) Log in to the Web user interface page.
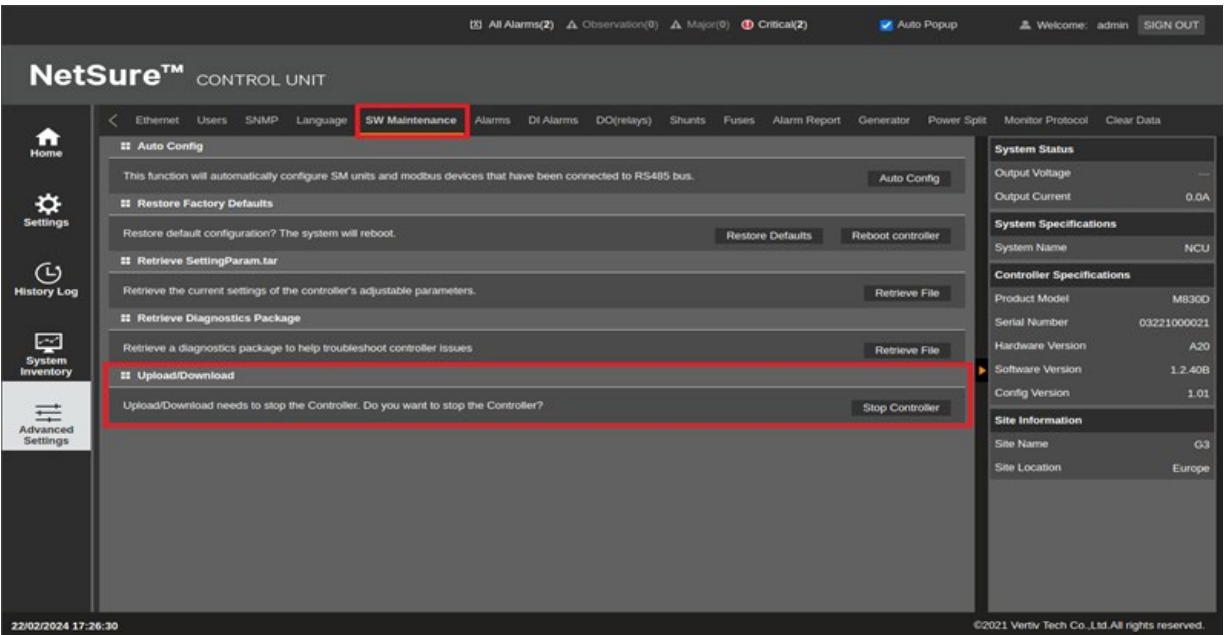
h) Click "Advanced Settings." See Figure 1.13.

Figure 1.13 Advanced Settings

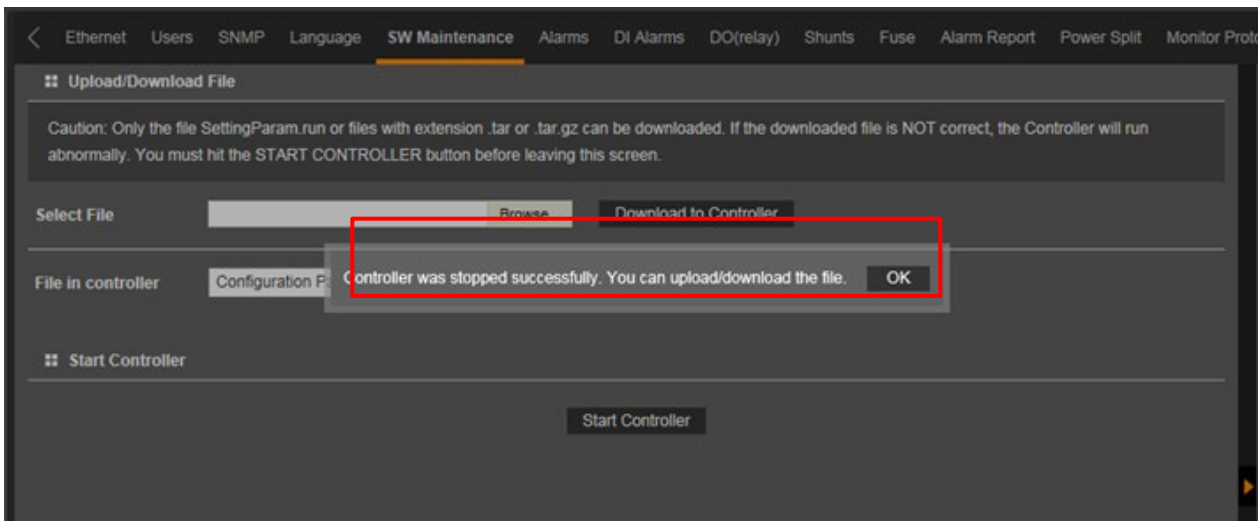Proprietary and Confidential © 2024 Vertiv Group Corp.

i)   Go to the SW Maintenance tab. Click on "Stop Controller." See Figure 1.14.

Figure 1.14 Stop Controller

j)   After the following window opens, click "OK." See Figure 1.15.

Figure 1.15 Upload/Download – Controller Stopped

ALERT! Never navigate away from this Web page without first clicking on "Start Controller" after loading the appropriate files. If you do, you will not have Web access. A manual system reset is required to restore Web access.

k)   After the following window appears (Figure 1.16), browse and navigate to the folder where the file to download is located. Select the application "All" package you copied earlier to your computer. Click "Download to Controller." This process may take several minutes. The following screen displays, indicating a successful upload. Click "OK" and then click "Start Controller" to reboot the NCU with the downloaded file installed. This process could take several minutes.

**Figure 1.16 Download Firmware Package and Start Controller**
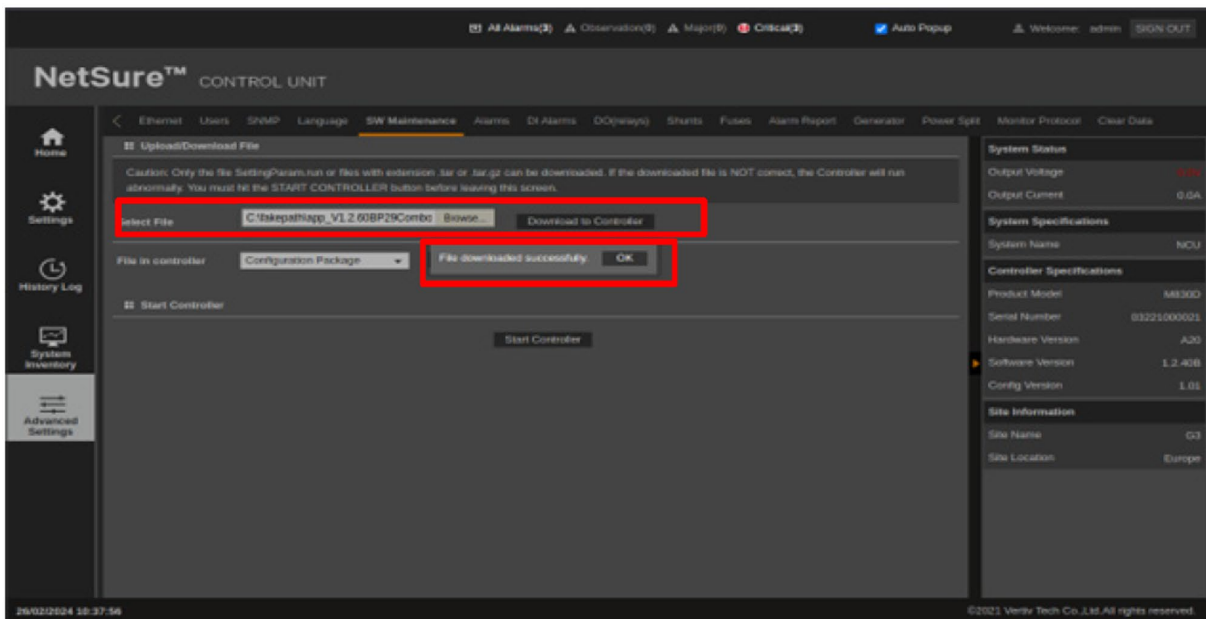
> 🔍 **NOTE!** *If a V1.260B or greater package file is downloaded in the previous steps to a version 1.2.51B or less revision controller before using the Clean-up tool, one of the following error messages will display:*

Figure 1.17 Error Message 1: "Failed to download file or wrong package type."
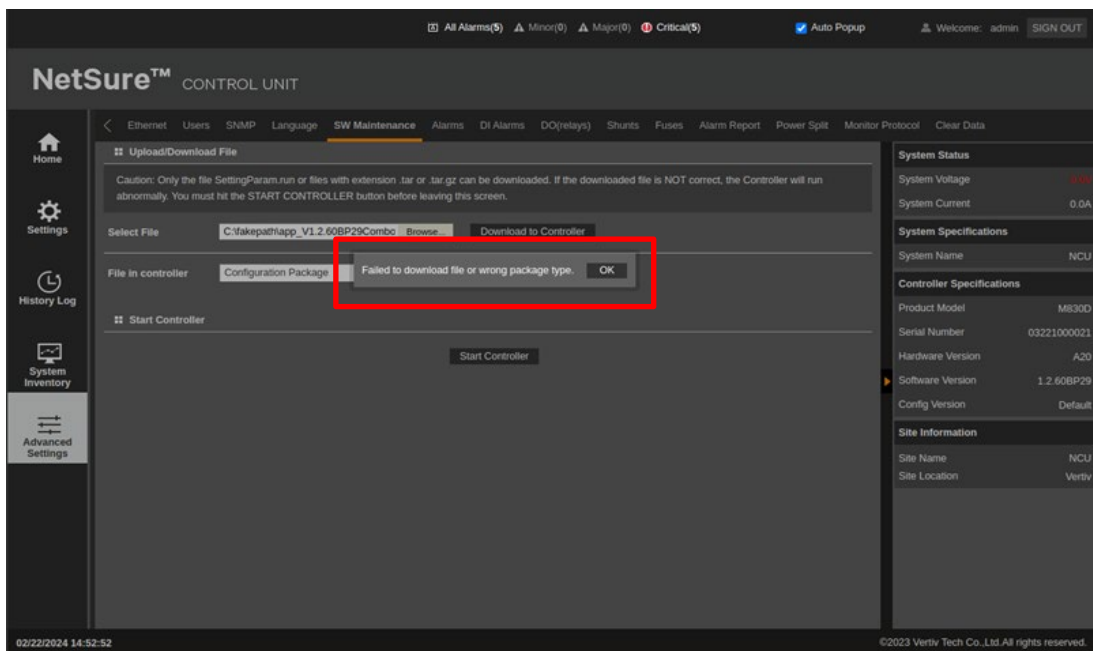
OR

Figure 1.18 Error Message 2: "Failed to download file."
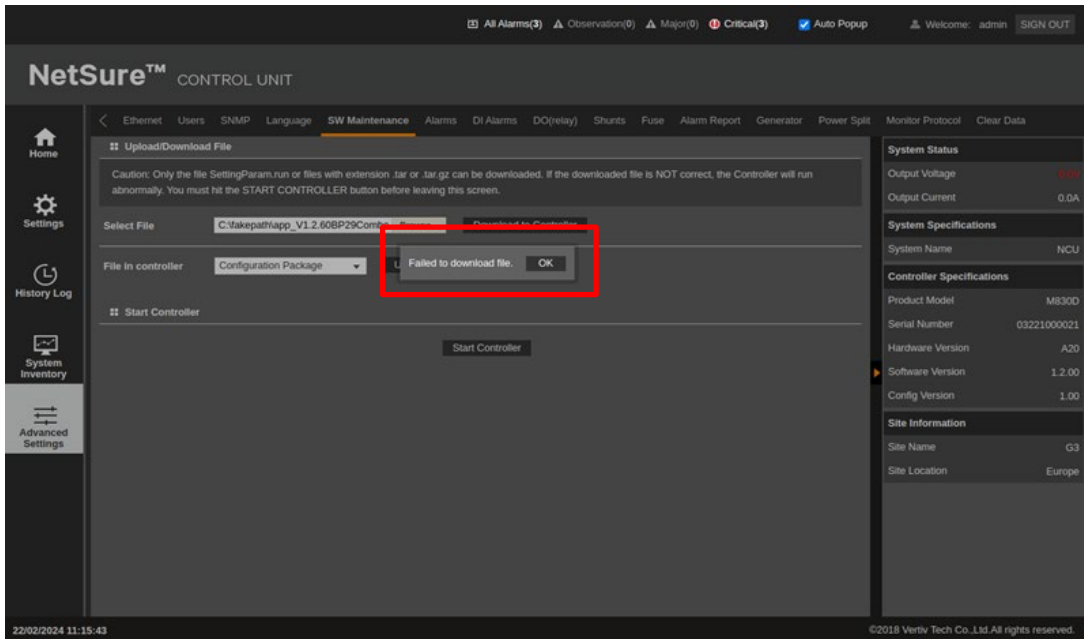
[ ] 15. If your system ORIGINALLY had an NCU controller, refer to "Reloading a Backed-Up NCU Configuration" on page 28 and restore the backed-up controller configuration file saved in step [ ] 3.

[ ] 16. Install separately ordered converter modules 1C48582000P3 in the far right mounting positions shown in Figure 1.3 and Figure 1.6, as required.

[ ] 17. Click on the converter icon in the NCU WEB interface power system status block diagram. This brings up the converter group status page. Check the converter output voltage and the status of each converter installed to verify all converters installed are active.

[ ] 18. Enable the external alarms or notify appropriate personnel that this procedure is finished.

[ ] 19. Ensure that there are no local or remote alarms active on the system.

[ ] 20. If your system ORIGINALLY had an ACU+ controller, refer to "Backing Up the NCU Configuration" on page 25 and backup the controller configuration. Save this configuration file in case the NCU configuration ever needs to be reloaded.

[ ] 21. Save these instructions in case a backout procedure needs to be performed at a later date.

1.5.2   Backout Procedure (when kit P/N 60028248 was installed)

If the power system needs to revert back to -48V/+24V operation, perform the following procedure.

[ ] 1.   Performing this procedure may activate external alarms. Do one of the following. If possible, disable these alarms. If these alarms cannot be easily disabled, notify the appropriate personnel to disregard any future alarms associated with this system while the procedure is being performed.

[ ] 2.   Remove all existing -58 VDC output converter modules from the module mounting shelves.

[ ] 3.   Remove the "Use Only -58 VDC Converters" caution labels (60028735).

[ ] 4.   Remove the shield from the top distribution panel.

[ ] 5.   Remove the plug buttons securing the -58 VDC distribution position labels located on the top distribution panel. Save the plug buttons after removing them as they will be needed in later steps. Remove the labels.

[ ] 6.   Install the saved "+24 VDC" distribution position labels in the places the -58 VDC labels were removed from. Secure the labels with the plug buttons previously removed.

[ ] 7.   Replace the shield to the top distribution panel.

[ ] 8.   Remove the kit supplied module position label (10019986).

[ ] 9.   Remove the kit supplied nameplate label (60027894).

[ ] 10.   Reverse the wiring to J3-3 (DI2-) and J3-4 (DI2+) on the IB2 board (connect existing wire in J3-3 to J3-4; and connect existing wire in J3-4 to J3-3).

[ ] 11.   Install converter modules 1C48241500 in the far-right converter module mounting positions, as required.

[ ] 12.   Enable the external alarms or notify appropriate personnel that this procedure is finished.

[ ] 13.   Ensure that there are no local or remote alarms active on the system.

1.5.3   Kit P/N 60031305

To convert the row 1 (bottom row) distribution panel to -58V positions, perform the following procedure to install kit P/N 60031305.
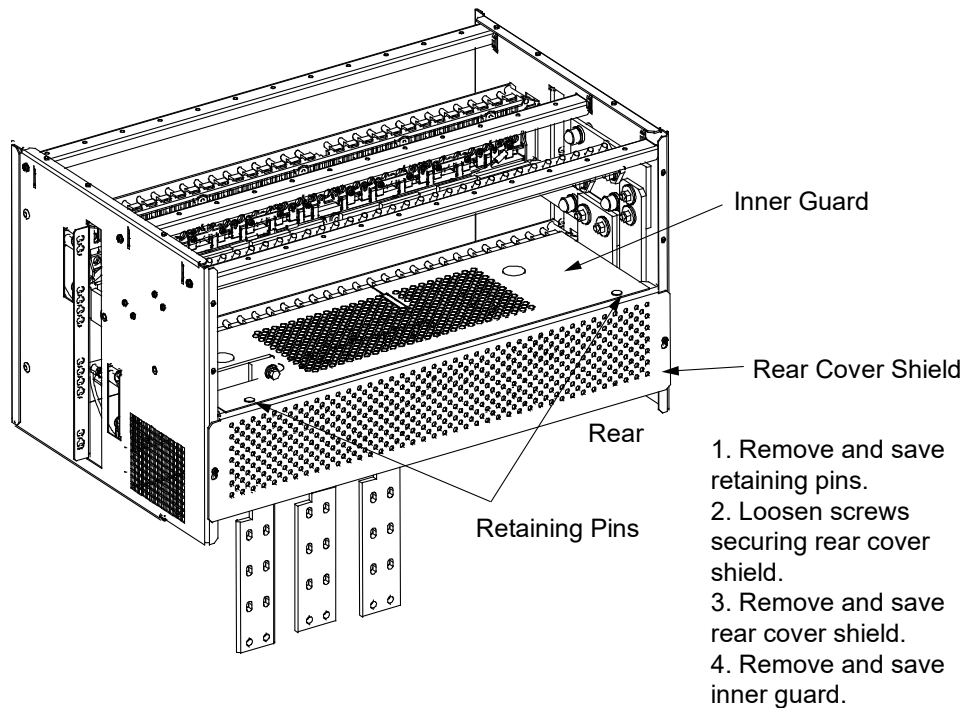
Procedure

⚠️ **DANGER!** This system must be isolated from all AC input power and battery power. All AC input power to the system must be turned off and all AC input disconnects must be locked out / tagged out before installing this kit. All battery power to the system must be turned off or disconnected and all battery disconnects must be locked out / tagged out before installing this kit. Observe the "Important Safety Instructions" starting on page v and those listed in the power system manual.

[ ] 1.   Performing this procedure may activate external alarms. Do one of the following. If possible, disable these alarms. If these alarms cannot be easily disabled, notify the appropriate personnel to disregard any future alarms associated with this system while the procedure is being performed.

[ ] 2.   Shutdown the power system. Turn off all AC input disconnects to remove AC power from the system. Turn off all battery disconnects to remove battery power from the system or disconnect the batteries from the system. Follow local lockout/tagout procedures to ensure AC and battery disconnects remain off during installation.

[ ] 3.   Remove the two (2) retaining pins shown in Figure 1.19. Save for reuse.

[ ] 4.   Remove the rear cover shield by loosening (but do not remove) the two (2) 6/32 x 3/8" screws securing it to the cabinet. Save for reuse. See Figure 1.19.

[ ] 5.   Remove inner guard. Save for reuse. See Figure 1.19.

Figure 1.19

Inner Guard

Rear Cover Shield

Rear

Retaining Pins

1. Remove and save retaining pins.
2. Loosen screws securing rear cover shield.
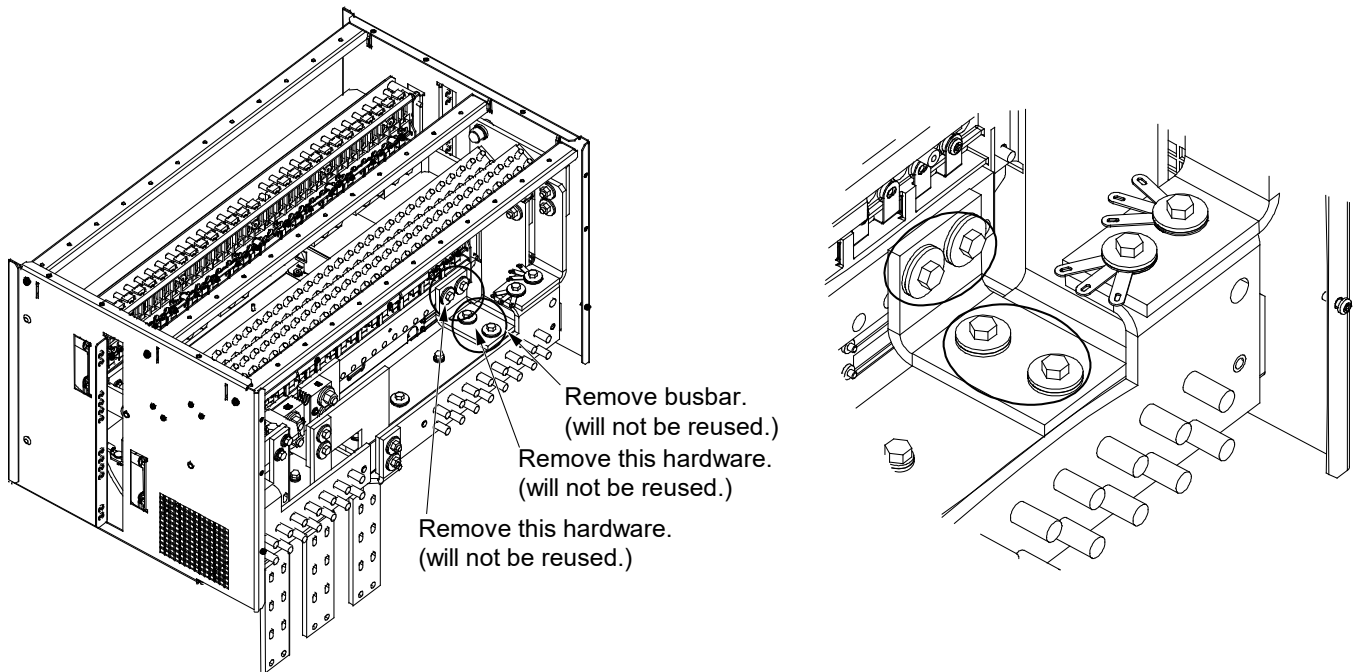3. Remove and save rear cover shield.
4. Remove and save inner guard.

[ ] 6.   Remove 1/4-20 x 7/8" bolts and hardware from +24V/-58V shelf busbar. Hardware will be replaced later in the procedure with longer bolts supplied in the kit. See Figure 1.20.
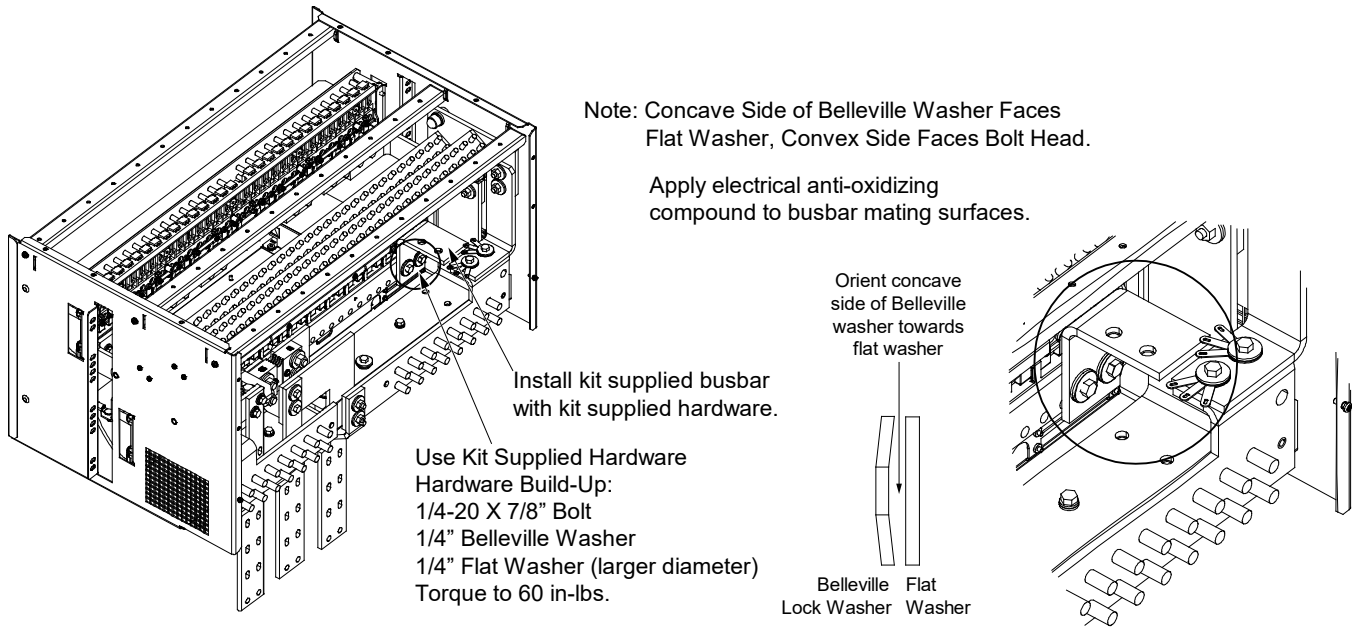
Figure 1.20

Rear

Remove this hardware.
(Hardware will not be reused.)
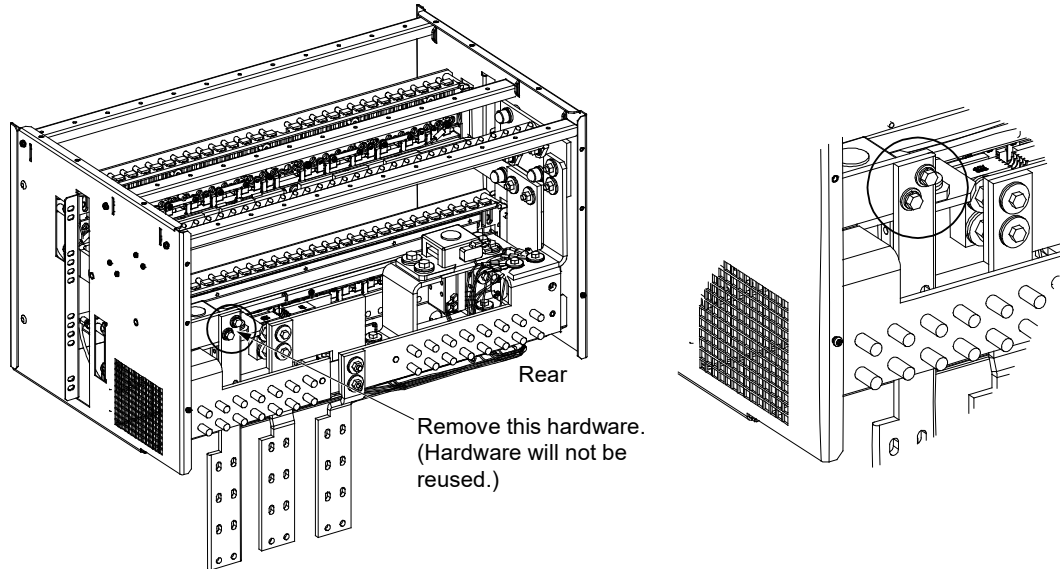
[ ] 7.   Remove hardware and L-shape busbar as shown in Figure 1.21. Parts will not be reused.

Figure 1.21

Remove busbar.
(will not be reused.)
Remove this hardware.
(will not be reused.)
Remove this hardware.
(will not be reused.)

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[ ] 8.   Install kit supplied L-shape busbar 555280 with kit supplied hardware as shown in Figure 1.22. Torque as indicated in Figure 1.22.

Figure 1.22

Note: Concave Side of Belleville Washer Faces Flat Washer, Convex Side Faces Bolt Head.

Apply electrical anti-oxidizing compound to busbar mating surfaces.

Orient concave side of Belleville washer towards flat washer

Install kit supplied busbar with kit supplied hardware.

Use Kit Supplied Hardware
Hardware Build-Up:
1/4-20 X 7/8" Bolt
1/4" Belleville Washer
1/4" Flat Washer (larger diameter)
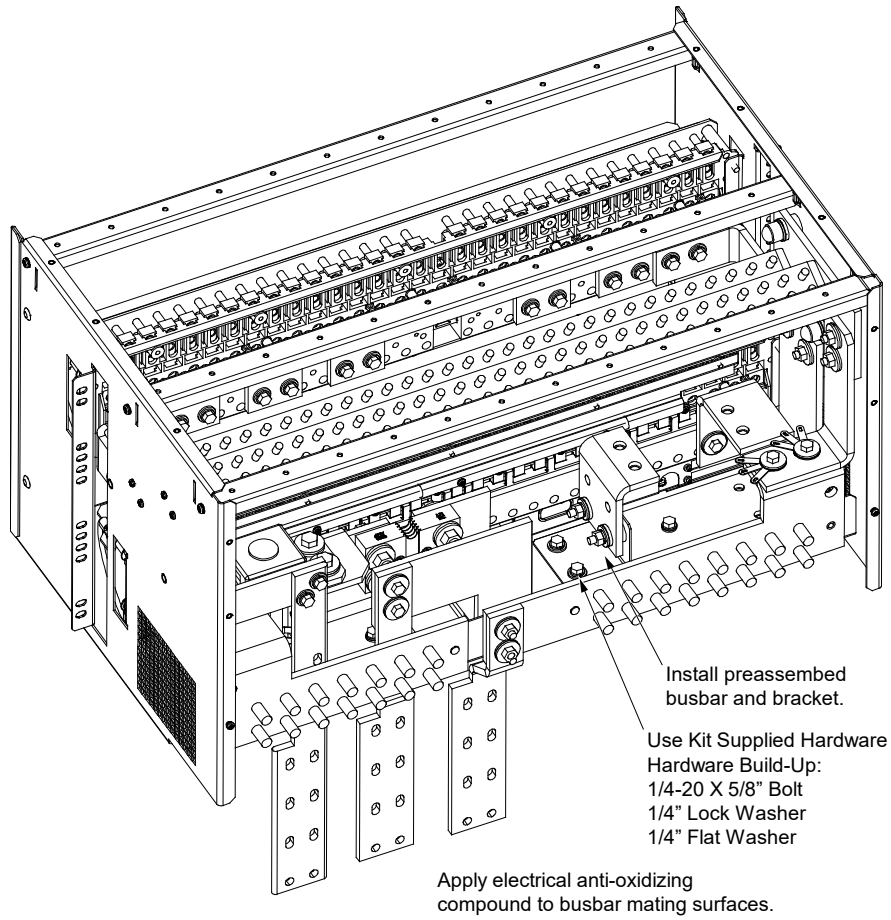Torque to 60 in-lbs.

Belleville Lock Washer   Flat Washer

[ ] 9.   Preassemble kit supplied L-shape steel mounting bracket 60031306, insulator 521047, L-shape busbar 60031132, insulator 520763, washers and nuts as shown in Figure 1.23. Hand tighten nuts.

Figure 1.23

1/4-20 Nut
1/4" Lock Washer
3/8" Flat Washer
Busbar 60031332
Bracket 60031306
Insulator 520763
Insulator 521047
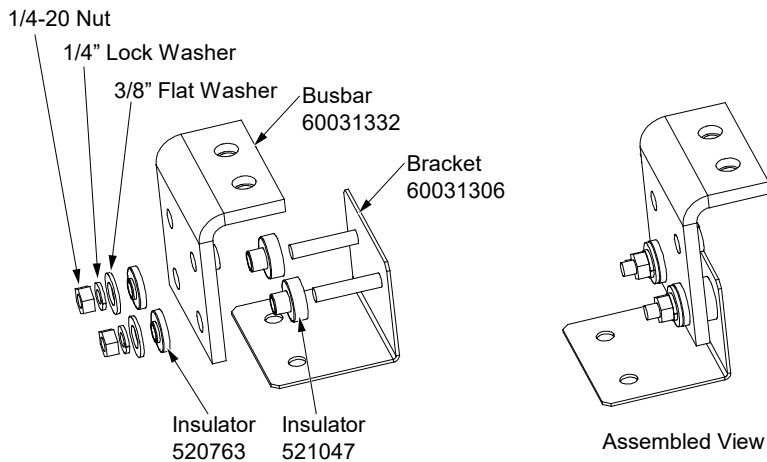
Assembled View

[ ] 10.   Install items preassembled in the above step to the -48V busbar using kit supplied hardware. Hand tighten the bolts.
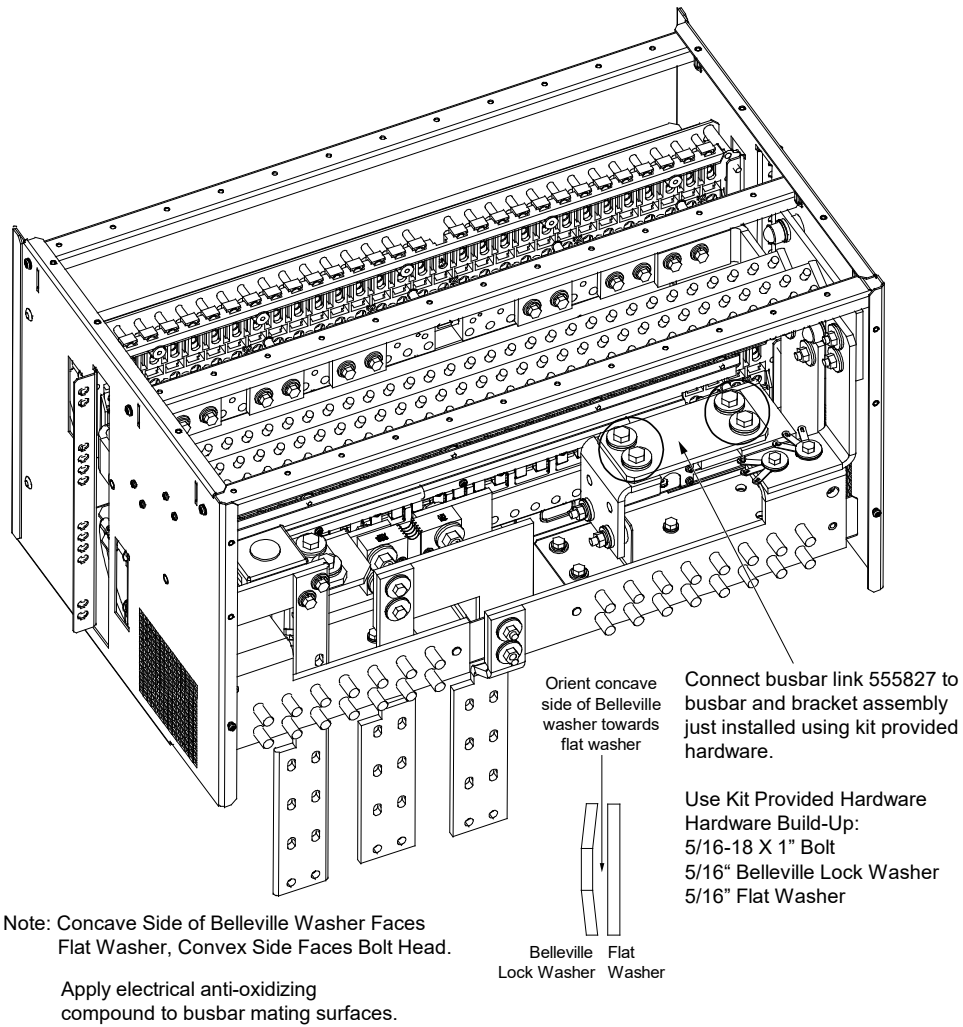See Figure 1.24.

Figure 1.24

Install preassembed
busbar and bracket.

Use Kit Supplied Hardware
Hardware Build-Up:
1/4-20 X 5/8" Bolt
1/4" Lock Washer
1/4" Flat Washer

Apply electrical anti-oxidizing
compound to busbar mating surfaces.

[ ] 11.   Install kit supplied busbar link 555827 using kit supplied hardware as shown in Figure 1.25. Hand tighten the bolts.
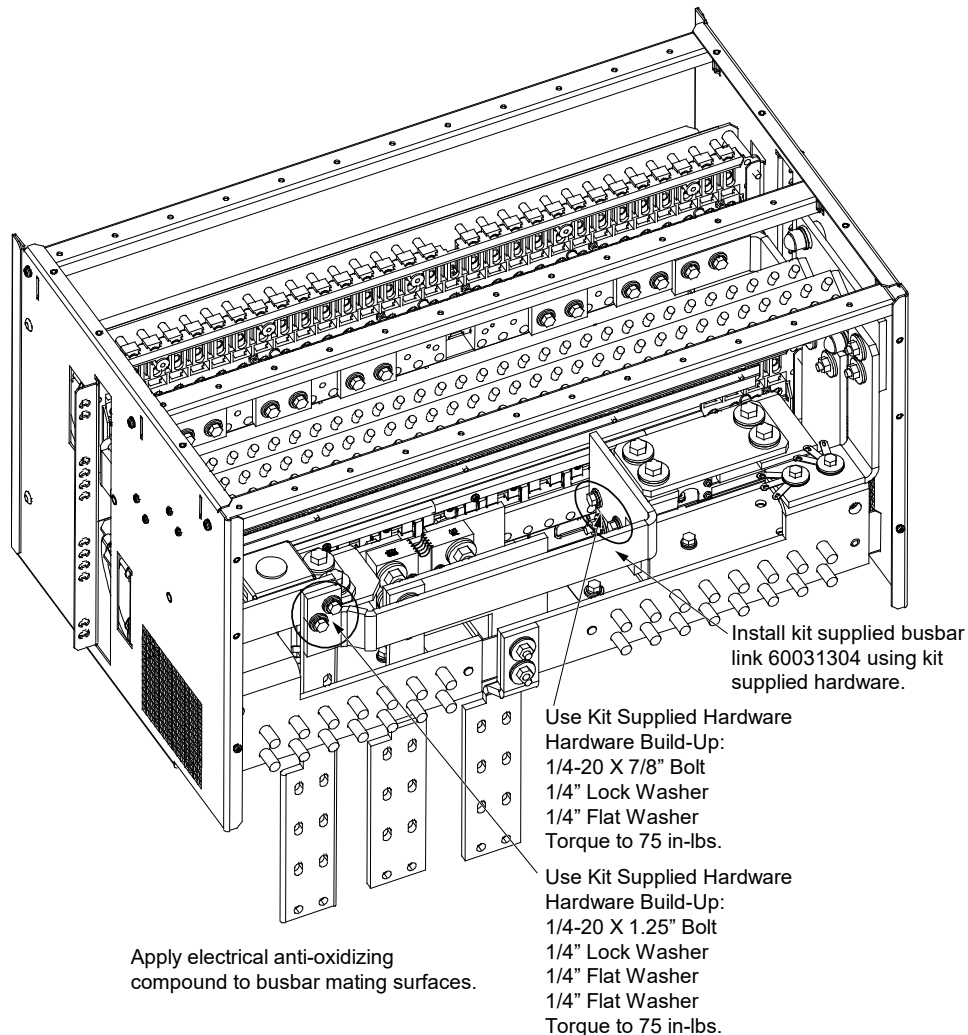
Figure 1.25

Orient concave
side of Belleville
washer towards
flat washer

Connect busbar link 555827 to
busbar and bracket assembly
just installed using kit provided
hardware.

Use Kit Provided Hardware
Hardware Build-Up:
5/16-18 X 1" Bolt
5/16" Belleville Lock Washer
5/16" Flat Washer

Note: Concave Side of Belleville Washer Faces
       Flat Washer, Convex Side Faces Bolt Head.

      Apply electrical anti-oxidizing
      compound to busbar mating surfaces.

Belleville   Flat
Lock Washer   Washer

[ ] 12.   Torque all hardware that was installed hand-tight in previous steps as indicated in Figure 1.26.

Figure 1.26

Torque to 108 in-lbs.

Torque to 75 in-lbs.

Torque to 75 in-lbs.
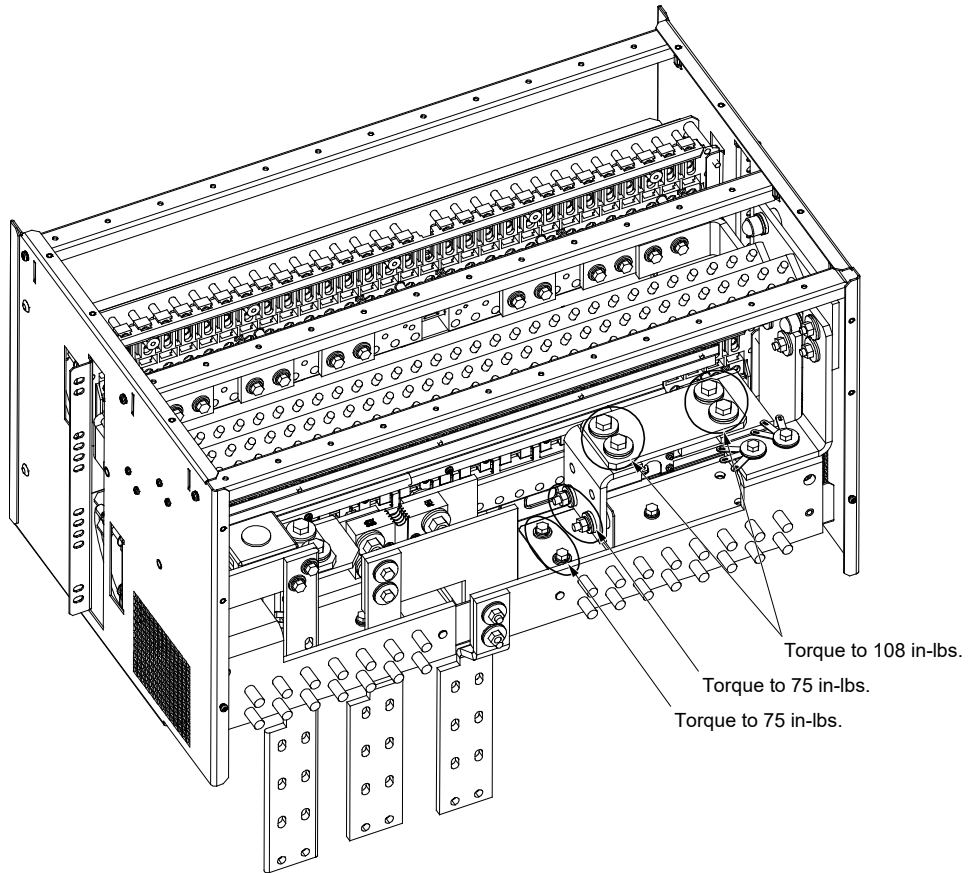
[ ] 13. Install kit supplied busbar link 60031304 using kit supplied hardware as shown in Figure 1.27. Torque as indicated in Figure 1.27.

Figure 1.27

Install kit supplied busbar link 60031304 using kit supplied hardware.

Use Kit Supplied Hardware
Hardware Build-Up:
1/4-20 X 7/8" Bolt
1/4" Lock Washer
1/4" Flat Washer
Torque to 75 in-lbs.

Use Kit Supplied Hardware
Hardware Build-Up:
1/4-20 X 1.25" Bolt
1/4" Lock Washer
1/4" Flat Washer
1/4" Flat Washer
Torque to 75 in-lbs.

Apply electrical anti-oxidizing compound to busbar mating surfaces.

[ ] 14. Reinstall items from steps 3, 4, and 5 in reverse order of disassembly. Tighten rear lexan cover screws (6-32) to 11 in-lbs.

[ ] 15. Remove the shield from the bottom distribution panel.

[ ] 16. Remove the plug buttons securing the existing "-48 VDC" distribution position labels located on the bottom distribution panel. Save the plug buttons after removing them as they will be needed in later steps. Remove the labels.

[ ] 17. Install the kit supplied "-58 VDC Critical / -58 VDC Non Critical" distribution position labels in the places the -48 VDC labels were removed from. Secure the labels with the plug buttons previously removed.

[ ] 18. Replace the shield to the bottom distribution panel.

[ ] 19. Restore AC input power and battery to the power system. Restart the power system (refer to the power system documentation).

[ ] 20.   Enable the external alarms or notify appropriate personnel that this procedure is finished.

[ ] 21.   Ensure that there are no local or remote alarms active on the system.

[ ] 22.   Save these instructions in case a backout procedure needs to be performed at a later date.

1.5.4   Backout Procedure - Using Kit P/N 60031673 (when kit P/N 60031305 was previously installed)

To revert the row 1 (bottom row) distribution panel back to -48V positions, perform the following procedure to install kit P/N 60031673.

Procedure

⚠️ **DANGER!** This system must be isolated from all AC input power and battery power. All AC input power to the system must be turned off and all AC input disconnects must be locked out / tagged out before installing this kit. All battery power to the system must be turned off or disconnected and all battery disconnects must be locked out / tagged out before installing this kit. Observe the "Important Safety Instructions" starting on page v and those listed in the power system manual.

[ ] 1.   Performing this procedure may activate external alarms. Do one of the following. If possible, disable these alarms. If these alarms cannot be easily disabled, notify the appropriate personnel to disregard any future alarms associated with this system while the procedure is being performed.

[ ] 2.   Shutdown the power system. Turn off all AC input disconnects to remove AC power from the system. Turn off all battery disconnects to remove battery power from the system or disconnect the batteries from the system. Follow local lockout/tagout procedures to ensure AC and battery disconnects remain off during installation.

[ ] 3.   Remove the shield from the bottom distribution panel.

[ ] 4.   Remove the plug buttons securing the -58 VDC distribution position labels located on the bottom distribution panel. Save the plug buttons after removing them as they will be needed in later steps. Remove the labels.

[ ] 5.   Install the kit supplied "-48 VDC" distribution position labels in the places the -58 VDC labels were removed from. Secure the labels with the plug buttons previously removed.

[ ] 6.   Replace the shield to the bottom distribution panel.

[ ] 7.   Remove the two (2) retaining pins shown in Figure 1.19 on page 15. Save for reuse.

[ ] 8.   Remove the rear cover shield by loosening (but do not remove) the two (2) 6/32 x 3/8" screws securing it to the cabinet. Save for reuse. See Figure 1.19 on page 15.

[ ] 9.   Remove inner guard. Save for reuse. See Figure 1.19 on page 15.

[ ] 10.   Remove portion of busbar assembly P/N 60032210 (installed as part of kit P/N 60031305) indicated in Figure 1.28.

[ ] 11.   Replace the hardware to the +24V/-58V shelf busbar. Torque as indicated in Figure 1.28.

[ ] 12.   In place of the removed portion of busbar assembly P/N 60032210, install kit furnished busbar P/N 555282. See Figure 1.28. Torque as indicated in Figure 1.28.

[ ] 13.   Reinstall items from steps 7, 8, and 9 in reverse order of disassembly. Tighten rear lexan cover screws (6-32) to 11 in-lbs.

[ ] 14.   Return panel alarm wires to the IB2 board to their +24V positions. See Figure 1.8.

[ ] 15.   Restore AC input power and battery to the power system. Restart the power system (refer to the power system documentation).

[ ] 16.   Enable the external alarms or notify appropriate personnel that this procedure is finished.

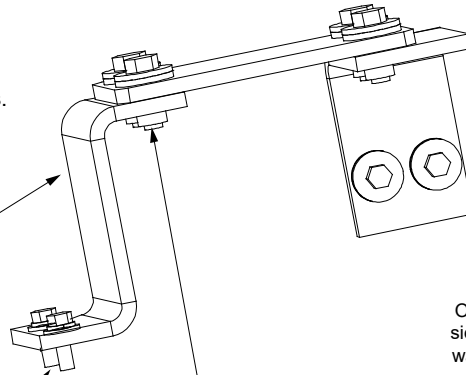[ ] 17.   Ensure that there are no local or remote alarms active on the system.

Figure 1.28 Reverting Back to -48V Distribution Positions
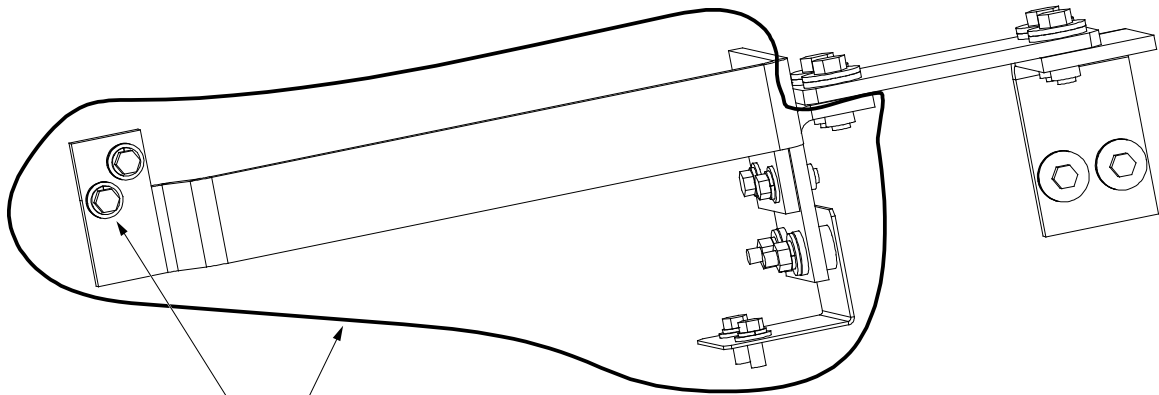
Remove this portion of
busbar assembly.

Replace Existing Hardware
Hardware Build-Up:
1/4-20 X 1.25" Bolt
1/4" Lock Washer
1/4" Flat Washer
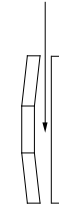1/4" Flat Washer
Torque to 75 in-lbs.

Add kit P/N 555282 busbar.

Use Kit Provided Hardware
Hardware Build-Up:
1/4-20 X 7/8" Bolt
1/4" Lock Washer
1/4" Flat Washer
Torque to 75 in-lbs.

Use Existing Hardware
Hardware Build-Up:
5/16-18 X 1" Bolt
5/16" Belleville Lock Washer
5/16" Flat Washer
Torque to 108 in-lbs.

Orient concave
side of Belleville
washer towards
flat washer

Belleville   Flat
Lock Washer   Washer

Note: Concave Side of Belleville Washer Faces
       Flat Washer, Convex Side Faces Bolt Head.

Apply electrical anti-oxidizing
compound to busbar mating surfaces.

1.6   Backing Up the NCU Configuration

1.6.1   NCU Version 1.1.80, or Later

General

To back up the NCU configuration, simply save the file named "SettingParam.tar".

Saving the "SettingParam.tar" File

Local Menu Navigation:

None.

Web Menu Navigation:

Advance Settings Menu / SW Maintenance Tab.

Procedure

1.   Click on the "Retrieve File" button to save the file named "SettingParam.tar" to your computer. Select where you want the file to be copied to on your computer.

To aid in file management, you may change the name of the "SettingParam.tar" file to differentiate it from other "SettingParam.tar" files saved. The new name can use alpha and numeric characters preceding the original "SettingParam.tar" name (the end of the new file name **must** always be "SettingParam.tar"; for example, an acceptable filename would be "seville4SettingParam.tar").

Figure 1.29 Retrieve "SettingParam.tar" File
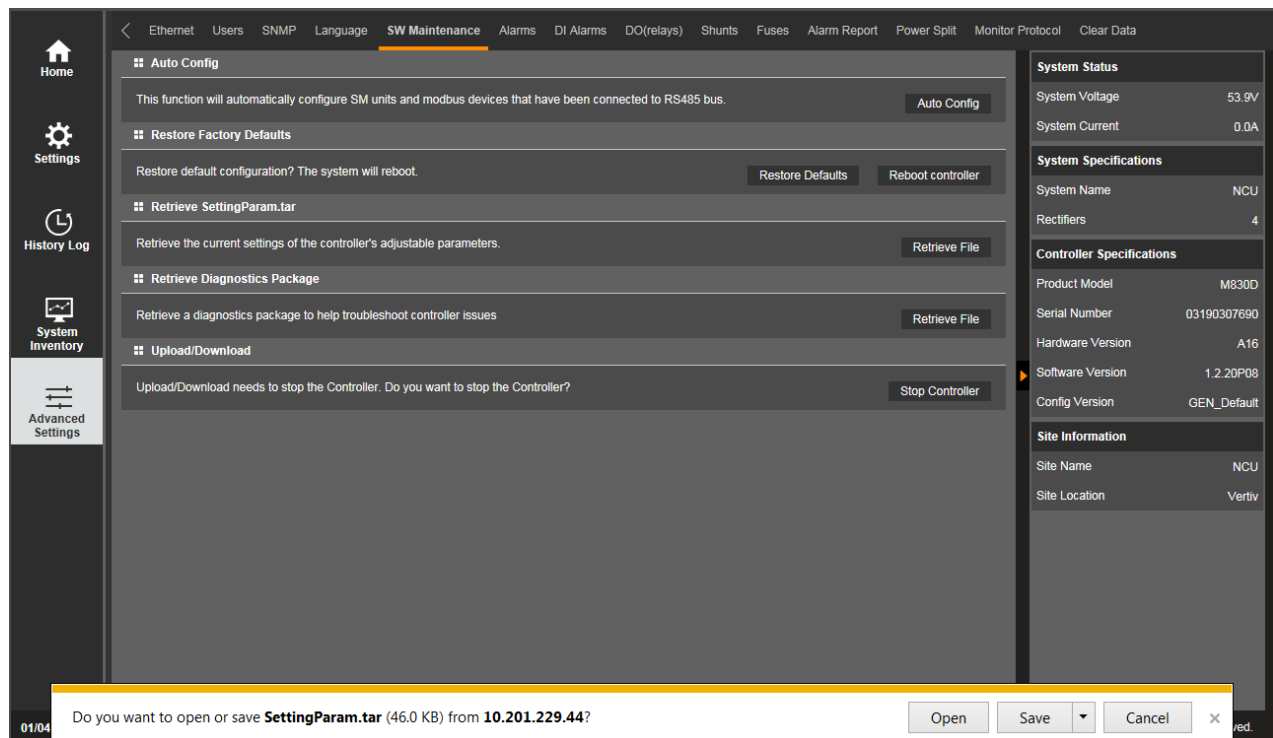
1.6.2   NCU Version 1.1.70, or Earlier

General

There are two steps in backing up the system's NCU configuration:

- Save the NCU configuration package. This package includes the base configuration and any changes made to alarm severity levels, relay assignments, signal names and site information.

- Save a file named "SettingParam.run". This file contains changes made to alarm setpoints and other settings such as float/ equalize voltage, etc. A file named "SettingParam.run" is automatically created/appended by the controller whenever a User (or the factory at the time of shipment) makes changes to parameter settings via the local display or Web Interface. This file can be saved to your computer so you can restore any custom settings you may have made.

Saving the Configuration Package

Local Menu Navigation:

None.

Web Menu Navigation:

Advance Settings Menu / SW Maintenance Tab.

Procedure

You can upload (from the controller to your computer) a configuration package.

1. To upload a file, you need to shut down the controller first. When you select the SW Maintenance Tab, click on the "Stop Controller" button.

Figure 1.30 Upload - Stop Controller
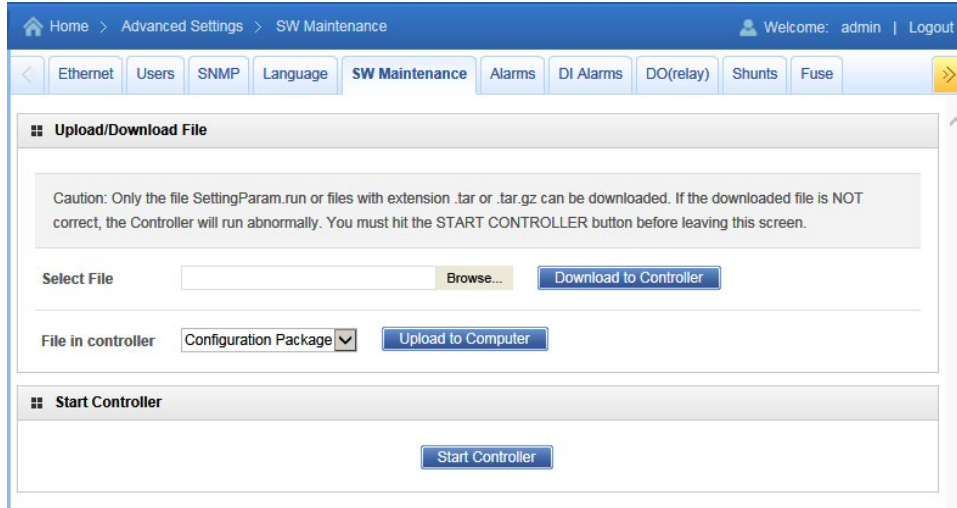

2. The following window opens.

Figure 1.31 Upload - Controller Stopped
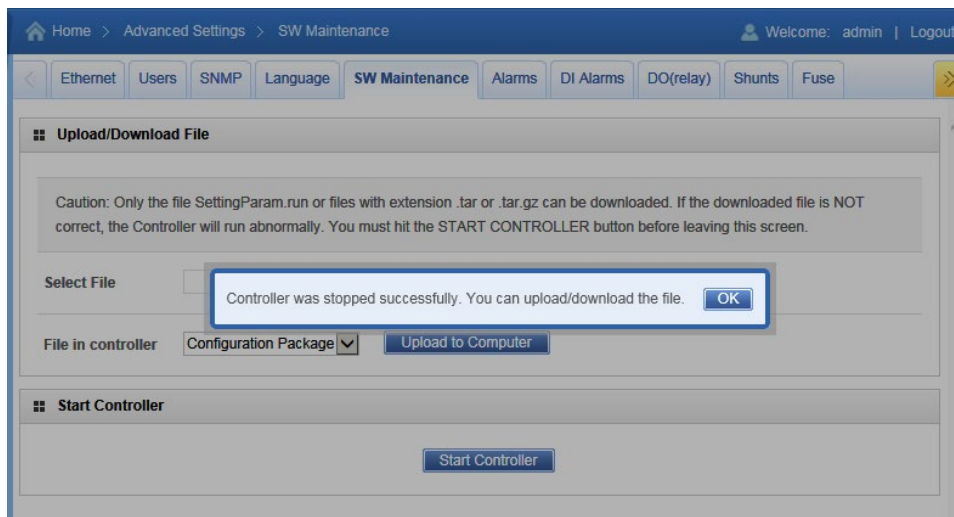
3. Click "OK".

4. The following window opens.

Figure 1.32 Upload File

ALERT! Never navigate from this Web page without first clicking on "Start Controller". If you do, you will not have Web access. A manual system reset is required to restore Web access.

5. To **upload** a file to your computer, select "Configuration Package" from the "File in Controller" drop-down list box, and click on the "Upload to Computer" button to save the file to your computer. Select where you want the file to be copied to on your computer. Click "Start Controller" to restart the Controller.

Saving the SettingParam.Run File

Local Menu Navigation:

None.

Web Menu Navigation:

Advance Settings Menu / SW Maintenance Tab.

Procedure

1. Click on the "Retrieve File" button to save the file named "SettingParam.run" to your computer. Select where you want the file to be copied to on your computer.

To aid in file management, you may change the name of the "SettingParam.run" file to differentiate it from other "SettingParam.run" files saved. The new name can use alpha and numeric characters preceding the original "SettingParam.run" name (the end of the new file name **must** always be "SettingParam.run"; for example, an acceptable filename would be "seville4SettingParam.run").

Figure 1.33 Retrieve SettingParam.run

1.7   Reloading a Backed-Up NCU Configuration

1.7.1   NCU Version 1.1.80, or Later

General

To reload the NCU configuration, simply download a saved "SettingParam.tar" file into the NCU.

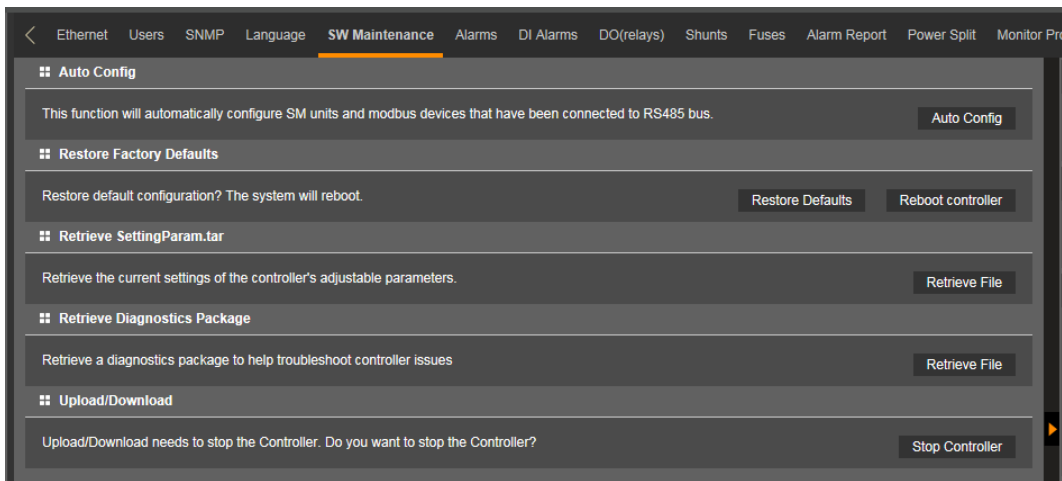**Reloading the "SettingParam.tar" File**

Local Menu Navigation:

None.

Web Menu Navigation:

Advance Settings Menu / SW Maintenance Tab.

Procedure

1. To download a file, you need to shut down the controller first. When you select the SW Maintenance Tab, click on the "Stop Controller" button.

Figure 1.34 Download - Stop Controller

2. The following window opens.

Figure 1.35 Download - Controller Stopped
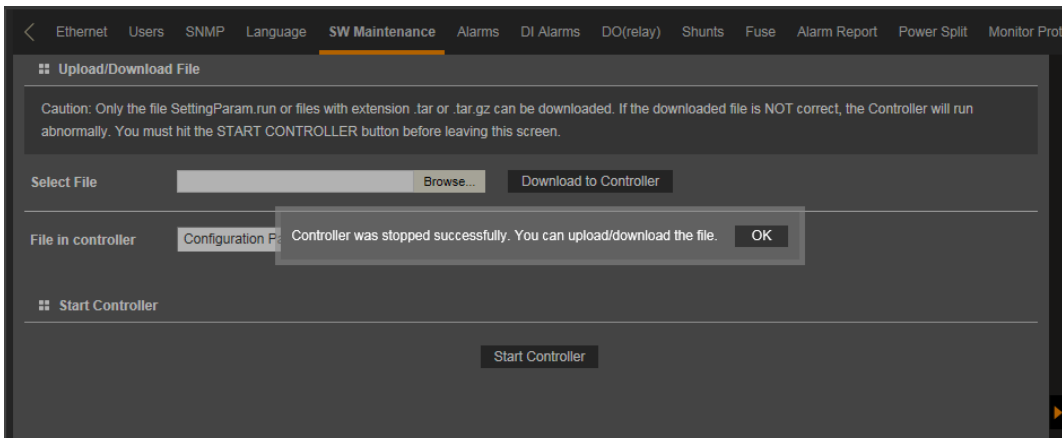
3. Click "OK".

4. The following window opens.

Figure 1.36 Download File
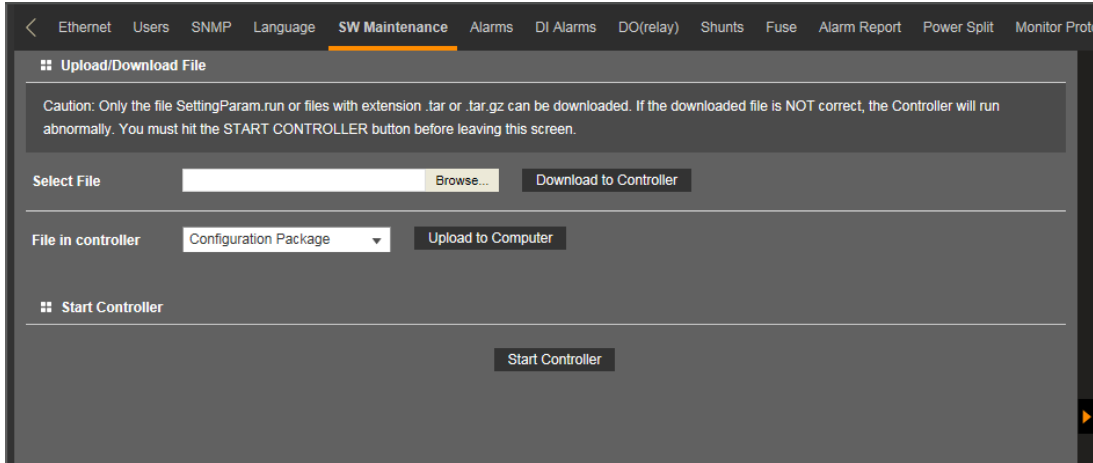
> **ALERT!** Never navigate from this Web page without first clicking on "Start Controller". If you do, you will not have Web access. A manual system reset is required to restore Web access.

5. To **download** (from your computer into the controller) a "SettingParam.tar" file; click the "Browse…" button and navigate to the folder where the file to download is located. Select the file to be downloaded and then click the "Download to Controller" button. Click "Start Controller" to restart the controller with the downloaded file installed.

1.7.2   NCU Version 1.1.70, or Earlier

General

There are two steps in reloading a backed-up NCU configuration:

- One step to reload the saved NCU configuration package.

- One step to reload the saved "SettingParam.run" file.

Reloading the Configuration Package and the SettingParam.Run File

Local Menu Navigation:

None.

Web Menu Navigation:

Advance Settings Menu / SW Maintenance Tab.

Procedure

You can download (from your computer into the controller) a configuration package (filename has a tar or tar.gz extension) and a SettingParam.run file".

1. To download a file, you need to shut down the controller first. When you select the SW Maintenance Tab, click on the "Stop Controller" button.
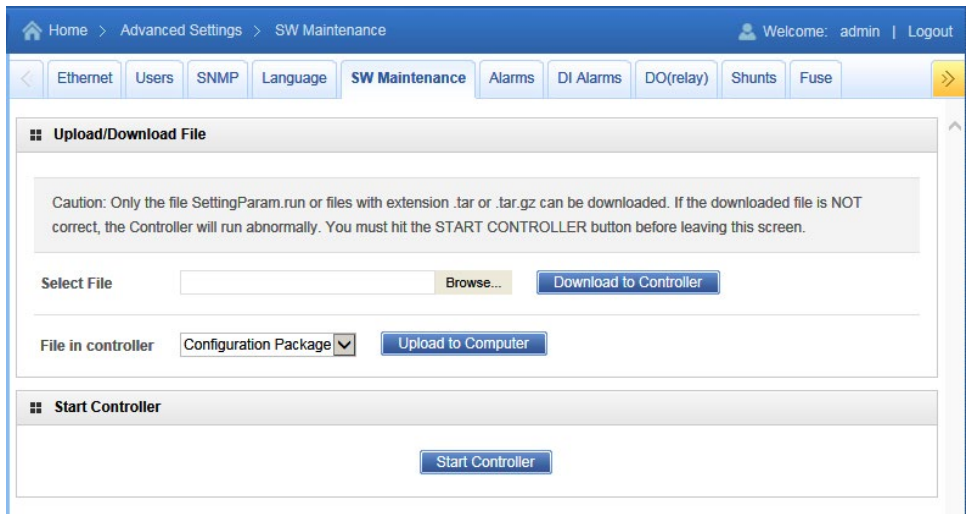
Figure 1.37 Download - Stop Controller

2. The following window opens.

Figure 1.38 Download - Controller Stopped
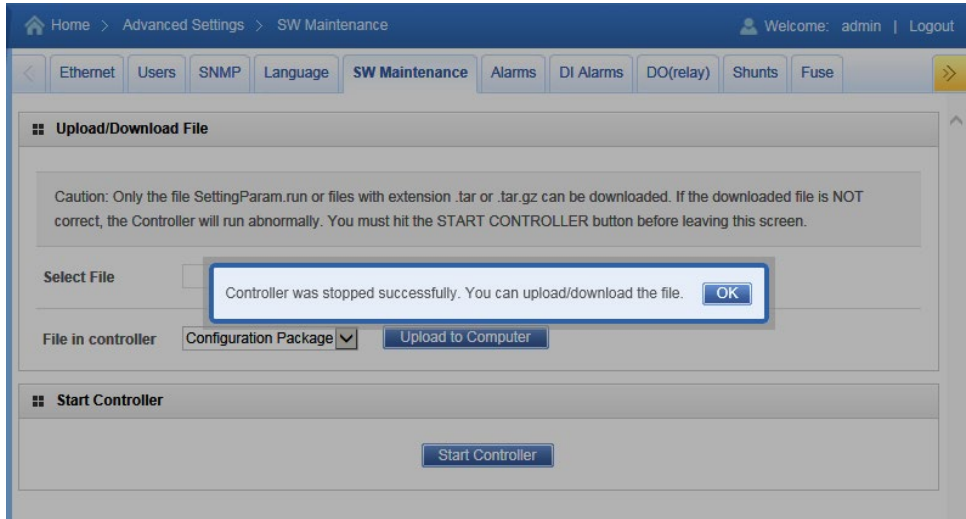
3. Click "OK".

4. The following window opens.

Figure 1.39 Download File

🚫 **ALERT!** Never navigate from this Web page without first clicking on "Start Controller". If you do, you will not have Web access. A manual system reset is required to restore Web access.

5. To **download** (from your computer into the controller) a configuration package; click the "Browse..." button and navigate to the folder where the file to download is located. Select the file to be downloaded and then click the "Download to Controller" button.

6. To **download** (from your computer into the controller) a "SettingParam.run" file; click the "Browse..." button and navigate to the folder where the file to download is located. Select the file to be downloaded and then click the "Download to Controller" button.

7. Click "Start Controller" to restart the controller with the downloaded files are installed.

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