



# Stand-Alone Inverter System NCU Integration Kit

## Installation Manual

Kit Specification Number: 10150523

For Use with Stand-alone Inverter Systems (Spec. Nos. 58413010001, 58413010001E, 58413010002, 58413010002E, 58413010003, 58413010003E, 58413010004, 58413010004E, 58413010005, 58413010005E, 58413010006, 58413010006E, 58413010007, 58413010008) and with NetSure™ Power Systems (Spec. Nos. 582126000, 582127000, 582136800, 582137100, 582137200)

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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/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™ Inverter System Kit Installation Instructions

## 1.1 Kit Description

These instructions provide a step-by-step procedure to field install this kit into the stand-alone inverter system (Spec. Nos. 58413010001, 58413010001E, 58413010002, 58413010002E, 58413010003, 58413010003E, 58413010004, 58413010004E, 58413010005, 58413010005E, 58413010006, 58413010006E, 58413010007, 58413010008) and with NetSure Power System Spec. Nos. 582126000\*, 582127000, 582136800, 582137100, or 582137200. Installation of this kit in other equipment should not be attempted.

\* NCU retrofit kit P/N 60124057 must be installed prior to using this kit on NetSure Power System Spec. No. 582126000.

This kit provides a fuse alarm jumper harness and CAN cables for the connections of the stand-alone inverter system to the power system to eliminate the NCU controller from the inverter system.

### Power System Requirements



**NOTE!** It is required that the NCU in the host power system be loaded with software version V1.2.41B or higher – if the inverter system has an IB5 board, V1.2.80 or higher is required.



**NOTE!** It is recommended that the NCU in the host power system be upgraded to a Rev B version with the most current software revision available.



**NOTE!** The host power system must have an open DI position on the IB2 board.



**NOTE!** Install this kit prior to terminating the AC/DC input cabling on the inverter system.

## 1.2 Kit Contents

Table 1.1 lists the items furnished as a part of this kit. Before installing the kit, check the items furnished against those listed to ensure that there are no shortages.

**Table 1.1 Kit Contents**

| P/N      | Description                                                              | Qty. |
|----------|--------------------------------------------------------------------------|------|
| 10150469 | Fuse Alarm Jumper Harness                                                | 1    |
| 10153225 | CAN Cable, Power System                                                  | 1    |
| 10153226 | CAN Cable, SM-Temp (will only be used in systems with an SM-Temp module) | 1    |

## 1.3 Tools and Material Required

Table 1.2 lists the items required to install this kit.

**Table 1.2 Tools and Material Required**

| Description           |
|-----------------------|
| Flat head screwdriver |
| Socket Set            |

## 1.4 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, those presented in the following procedure, and those listed in the system manual. 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.

### Procedure



**DANGER!** Observe the “Important Safety Instructions” starting on page v and those listed in the power system manual.



**DANGER!** If 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.



**NOTE!** The below procedure is shown for installing this kit in the stand-alone inverter system (P/N 58413010002E). Follow the same procedure to install this kit in the other stand-alone inverter systems.

### NCU Software and Hardware Versions



**NOTE!** It is required that the NCU in the host power system be loaded with software version V1.2.41B or higher. If new software is required, contact Vertiv TAC at 800-800-5260 for an updated version.



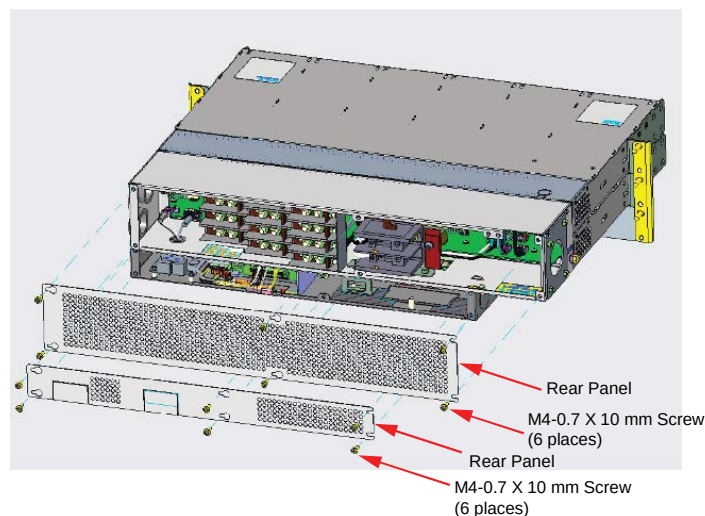
**NOTE!** It is recommended that the NCU in the host power system be upgraded to a Rev B version.

- [ ] 1. Refer to the NCU manual for information on how to determine your hardware/software versions and how to load new software.

### Removing the Rear Panels

- [ ] 1. Remove the rear panels of the stand-alone inverter system by removing the M4-0.7 X 10 mm Phillips head screws. See Figure 1.1. These rear panels will be reinstalled after this kit installation with the removed hardware.

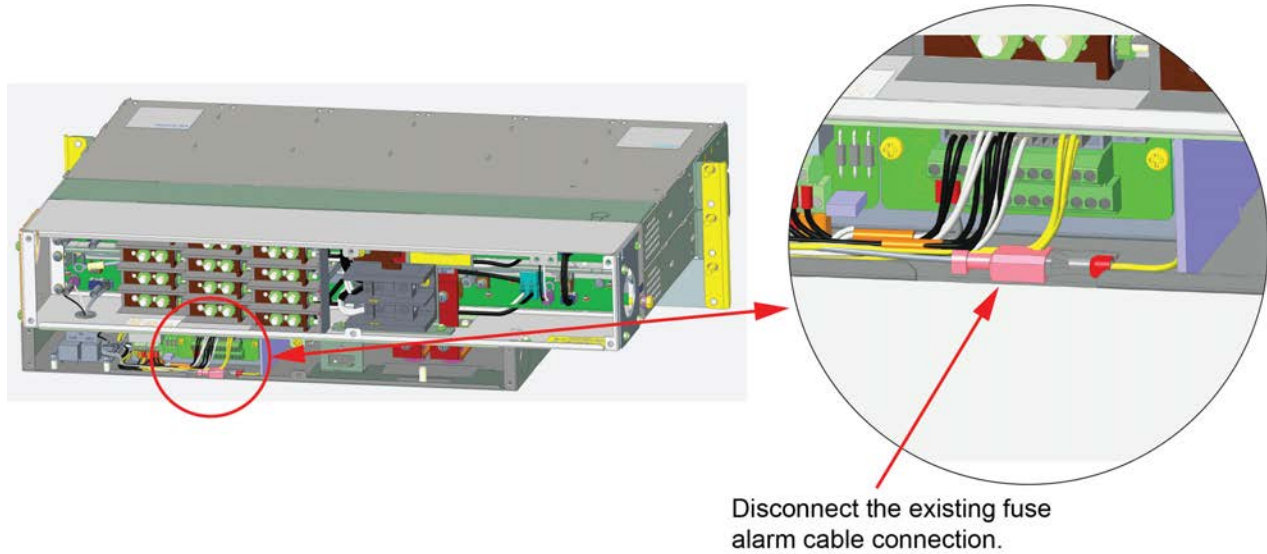
**Figure 1.1 Removing the Rear Panels**



## Installing Fuse Alarm Jumper Harness (P/N 10150469)

- [ ] 1. Disconnect the existing fuse alarm cable connection to the inverter IB2 board. See Figure 1.2.

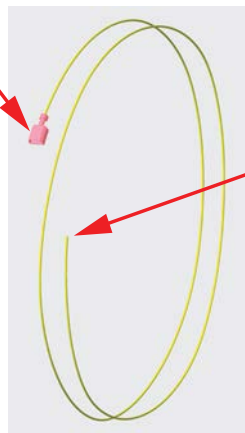
**Figure 1.2 Disconnecting the Existing Fuse Alarm Cable Connection**



- [ ] 2. Connect the fuse alarm jumper harness (P/N 10150469) male connector to the existing female connector. See Figure 1.3.

**Figure 1.3 Connecting Fuse Alarm Jumper Harness (P/N 10150469)**

Connect this end to the female connector of the existing fuse alarm cable.



Refer to the next step for the connection of this end to the available DI+ on the IB2 board of DC power system.

P/N 10150469

- [ ] 3. To connect the other end of the fuse alarm jumper harness (P/N 10150469), follow the steps below.
  - a) For Spec. Nos. 582126000, 582127000, and 582137100: Open the distribution cabinet's front door by turning the latch in the counterclockwise position (system's in a relay rack), or open the system's enclosure door.

For Spec No. 582137200: Loosen the screw securing the slide out tray on the rear of the distribution unit. Slide the tray out to access the IB2 board.

For Spec. No. 582136800: Loosen the captive fastener on the front of the IB2 board and slide the assembly partially out of the shelf.

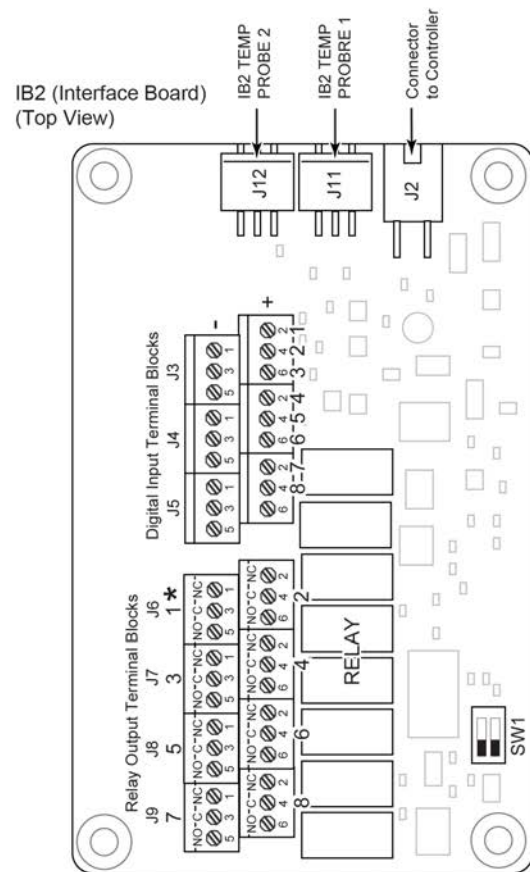
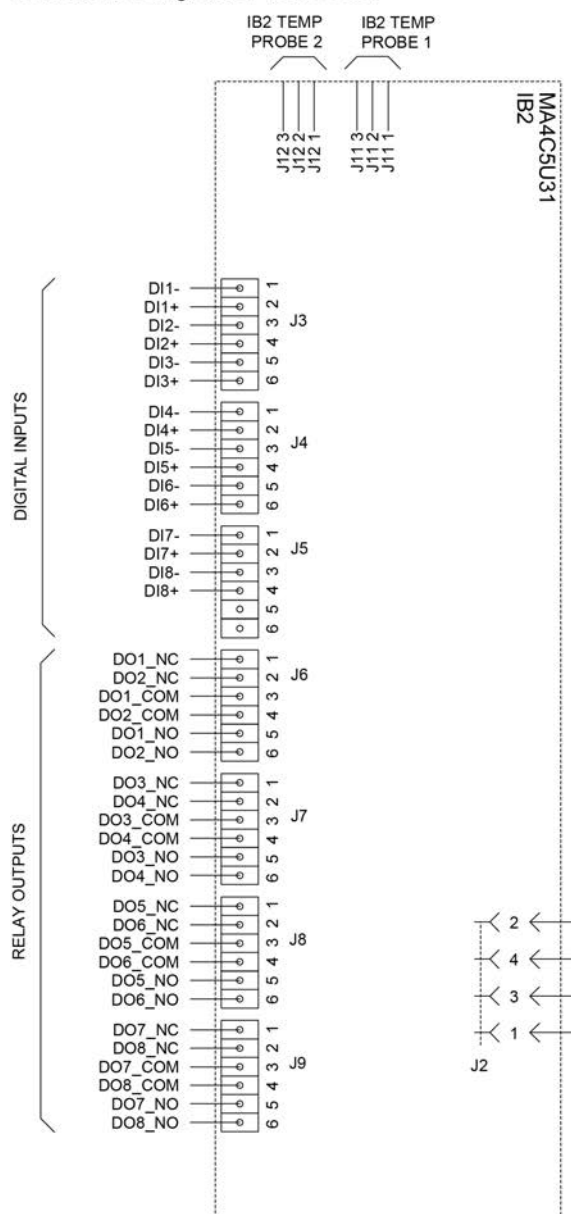
- b) Locate the IB2 board of the power system.
- c) Connect the other end of the fuse alarm jumper harness (P/N 10150469) to an available DI+ terminal on the IB2 board of the DC power system. See Figure 1.4.



**NOTE!** Ensure the jumper harness is routed and secured safely.

Figure 1.4 Connecting Other End of the Fuse Alarm Jumper Harness (P/N 10150469)

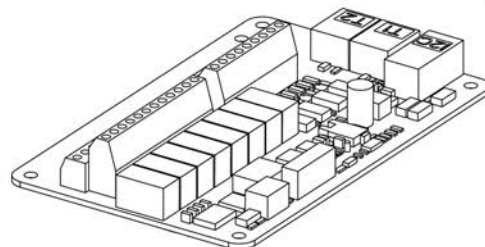
#### Schematic Diagram of IB2 Board



#### J3-J9:

Wire Size Capacity: 16-26 AWG.  
Recommended Torque: 2.2 in-lbs.

#### IB2 (Interface Board)



## **-48V Jumper Connection**



**DANGER!** If this procedure is performed on a LIVE system, extreme caution is required. Avoid direct contact with live terminals to prevent electric shock.

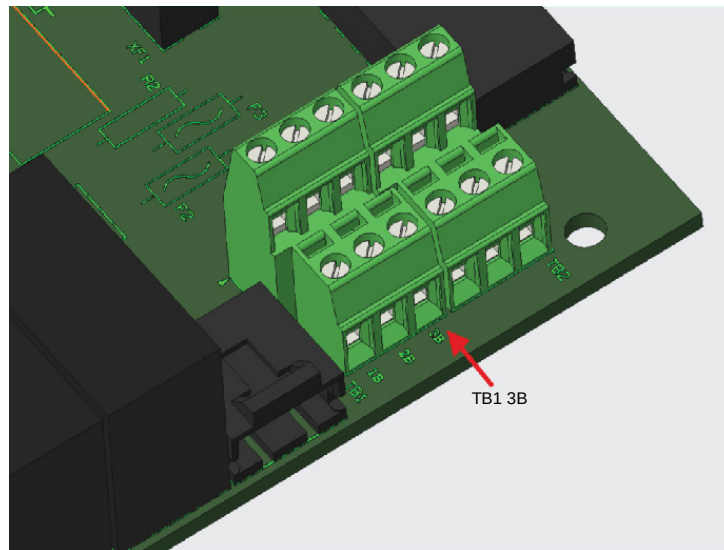
**For All the Power System Spec. Nos. 582126000, 582127000 (exception for lists 930, 931, and 990 below), 5282136800, 582137100, and 582137200.**

- [ ] 1. Add a customer supplied jumper from DI8- terminal to the corresponding DI- terminal associated with the DI+ terminal where the fuse alarm cable has been connected. The existing factory installed wire in DI8- terminal needs to remain in place along with the new jumper.

**For Spec. No. 582127000 (lists 930, 931, and 990)**

- [ ] 1. Check the wire in DI8- to see if the wire has a ferrule on it.
  - a) If “yes”, then add a customer supplied jumper from the system interface board (P/N 430171G1) connector TB1 terminal 3B to the corresponding DI- terminal associated with the DI+ terminal where the fuse alarm cable has been connected. Refer to Figure 1.13 for system interface board location.
  - b) If “No”, then add a customer supplied jumper from the DI8- terminal to the corresponding DI- terminal associated with the DI+ terminal where the fuse alarm cable has been connected. The existing factory installed wire in DI8- terminal needs to remain in place along with the new jumper.

**Figure 1.5 System Interface Board (P/N 430171G1) Terminal Location**



**NOTE!** Refer to the NCU Instruction Manual for how to change the state and text for the DI position utilized for this termination.

## **CAN Wiring Connection**

### **SM-Temp Module to Inverter System Wiring:**



**NOTE!** If your power system does not have an SM-Temp module, skip this section and proceed to section 'Power System to Inverter System Wiring:' on page 8.

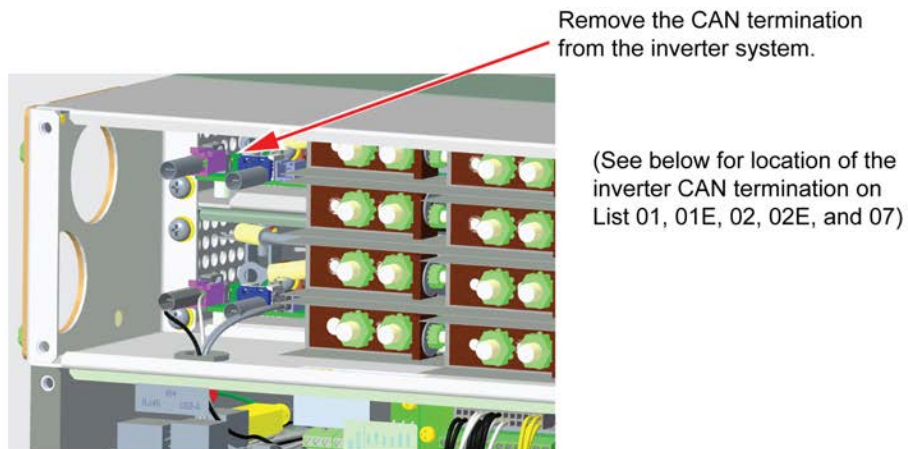
Perform the procedure below for CAN wiring connection from the SM-Temp module to the inverter system.

- [ ] 1. Remove existing cable (P/N 562868) from the SM-Temp module (open end of cable) and power system interface board (RJ-45 end).

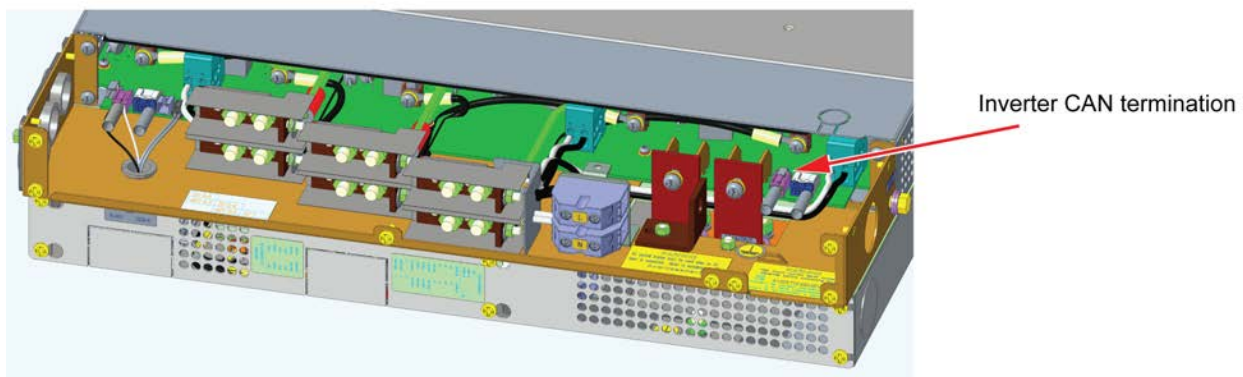
- [ ] 2. Remove the terminator from the inverter system located at the rear. See Figure 1.6.

**NOTE!** One end of the CAN cable (P/N 10153226) with the connector will be connected to this location. Refer to the next step for the connections of the CAN cable.

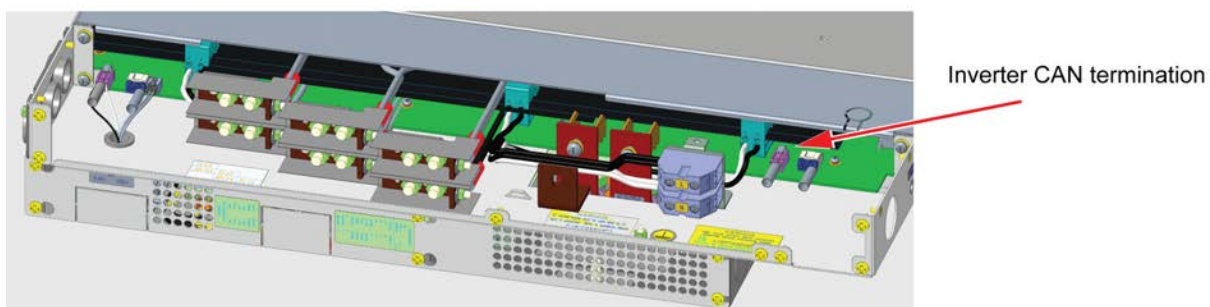
Figure 1.6 Removing the CAN Terminator



58413010001 and 01E

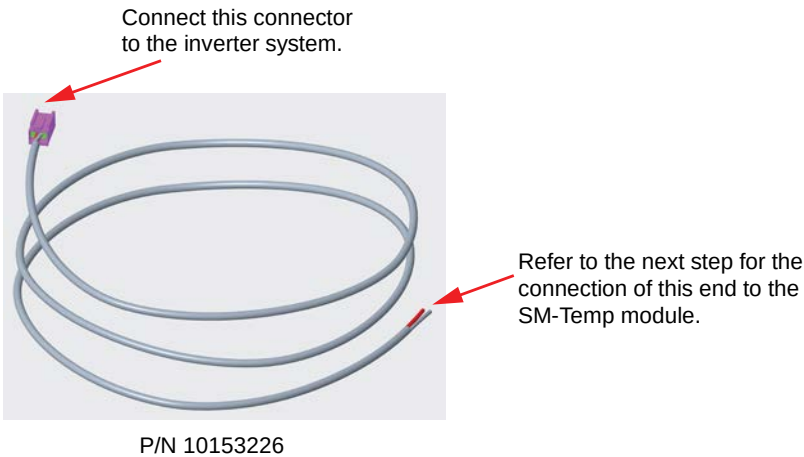


58413010002, 02E, and 07



- [ ] 3. Connect CAN cable (P/N 10153226) with the connector instead of the terminator to the inverter system. See Figure 1.7.

**Figure 1.7 Connecting One End of CAN Cable (P/N 10153226)**



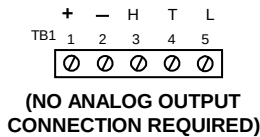
- [ ] 4. Connect the open end of the same cable as shown in the SM-temp CAN connection diagram. Connect CAN\_L wire (White/Orange) to terminal L on SM-Temp and CAN\_H wire (Orange) to H terminal on SM-Temp. Connect the customer-supplied shorting jumper from Terminal H to Terminal T as shown in Figure 1.8.



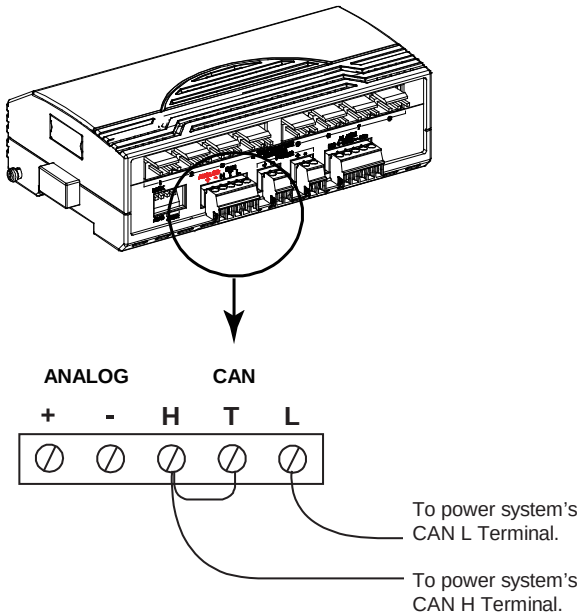
**NOTE!** Ensure the CAN cable is routed and secured safely.

**Figure 1.8 Connecting Open End of Cable P/N 10153226**

**ANALOG OUTPUT CONNECTION NOT REQUIRED**  
(when connecting the SM-TEMP to the Controller's CAN bus  
and not connecting the SM-TEMP analog output  
to the Controller's temperature sensor port)



**CAN BUS INTERCONNECTIONS**  
(when connecting the SM-TEMP to the Controller's CAN bus  
and not connecting the SM-TEMP analog output  
to the Controller's temperature sensor port)



**Power System to Inverter System Wiring:**

Perform the procedure below for CAN wiring connection from the power system to the inverter system.

- [ ] 1. Locate the system interface board in the power system and disconnect the RJ-45 terminator from the power system interface board. See Figure 1.9 to Figure 1.15 for the different power system interface boards.

**NOTE!** One end of the CAN cable (P/N 10153225) with the RJ-45 connector will be connected to this location of the power system interface board. Refer to Step 3 for the connection details.

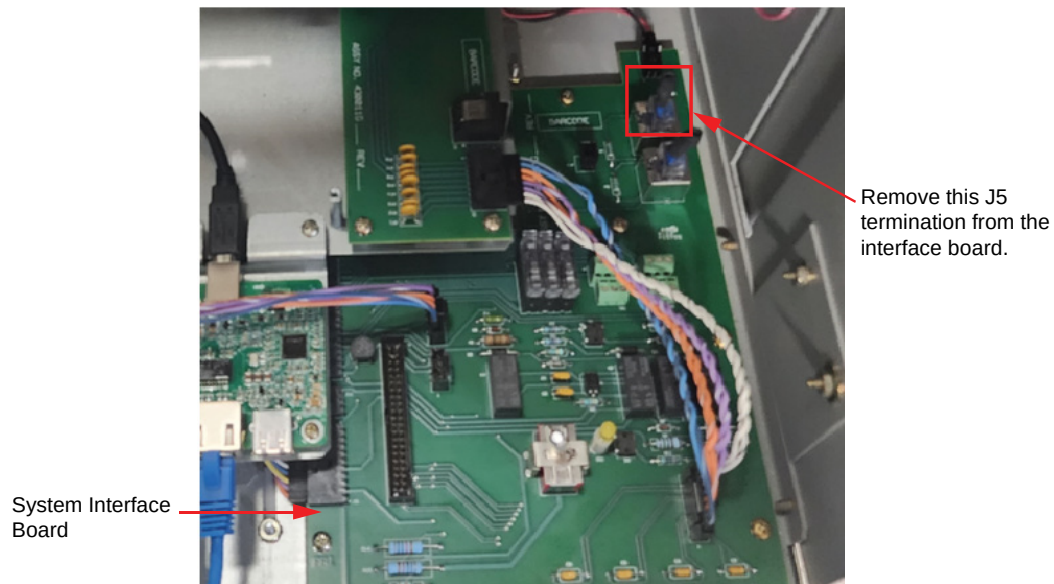
**NOTE!** If your power system had an SM-Temp module, a terminator resistor will not be present and CAN cable (P/N 10153225) will plug into the vacant RJ-45 jack on the system interface board.

**Figure 1.9 System Interface Board, P/N 430001G1 (for Spec. No. 582126000 after NCU retrofit kit P/N 60124057 has been installed)**

Follow the below steps for the power system Spec. No. 582126000 after NCU retrofit kit P/N 60124057 has been installed.

1. Open door to the main bay of the power system.
2. Locate the board at the bottom of the distribution chamber on the right side.
3. Disconnect the terminator from J5.

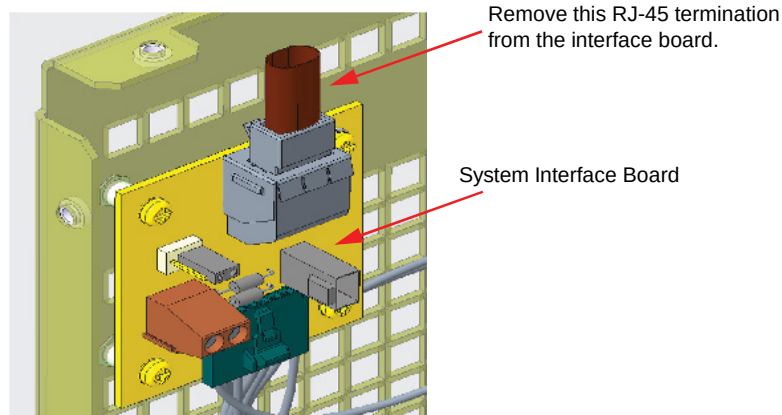
Note: If there is a cable in J5, do NOT remove it. Instead, look for a terminator in J5 in the last supplemental bay of the system and remove it.



**Figure 1.10 System Interface Board, P/N 555484 (For Spec. Nos. 582137100 and 582127000 (List 600, 601, 900, 901))**

Follow the below steps for the power system Spec. Nos. 582137100 and 582127000 (List 600, 601, 900, 901).

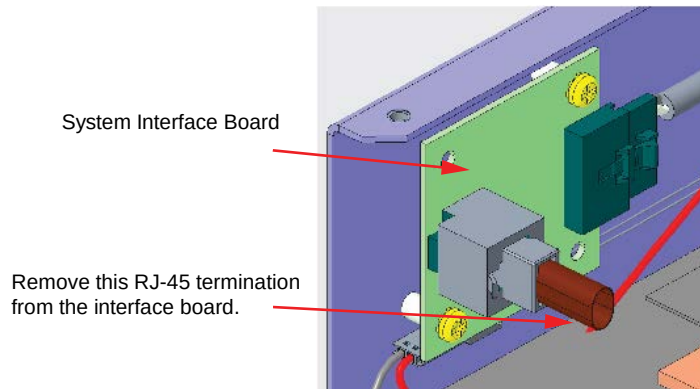
1. Remove the rear panel of the power system.
2. Locate the board at the rear of the system.
3. Disconnect the terminator from the power system interface board.



**Figure 1.11 System Interface Board, P/N 553264 (For Spec. No. 582136800)**

Follow the below steps for the power system Spec. No. 582136800.

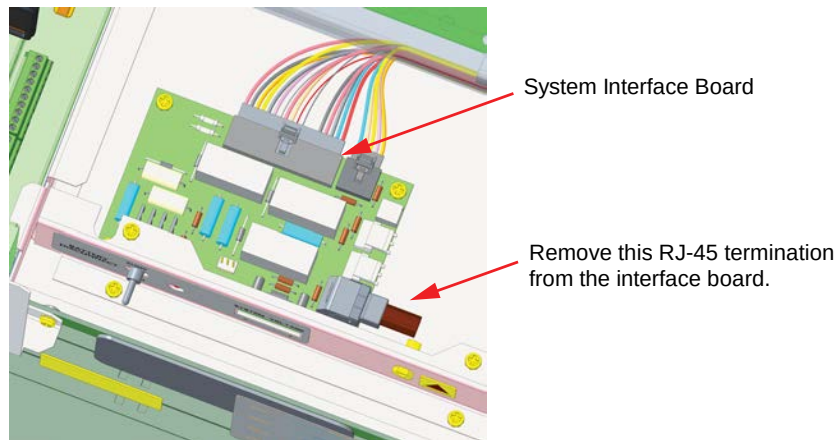
1. Remove the rear panel of the power system.
2. Locate the board at the rear of the system.
3. Disconnect the terminator from the power system interface board.



**Figure 1.12 System Interface Board, P/N 562662 (For Spec. No. 582127000 (List 100, 101, 102, 203, 500, 501, 502, 503))**

Follow the below steps for the power system Spec. No. 582127000 (List 100, 101, 102, 203, 500, 501, 502, 503).

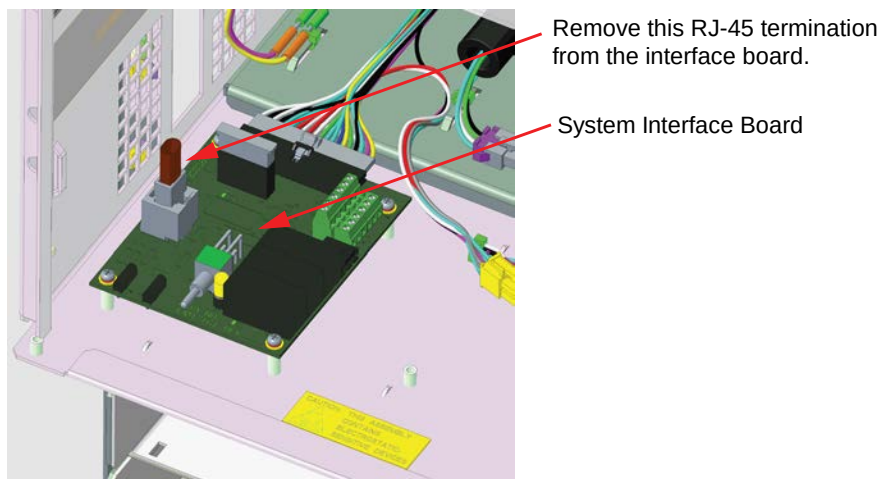
1. Locate the board at the front of the system.
2. Disconnect the terminator from the power system interface board.



**Figure 1.13 System Interface Board, P/N 430171G1 (For Spec. Nos. 582127000 List 930, List 931)**

Follow the below steps for the power system Spec. No. 582127000 (List 930, 931).

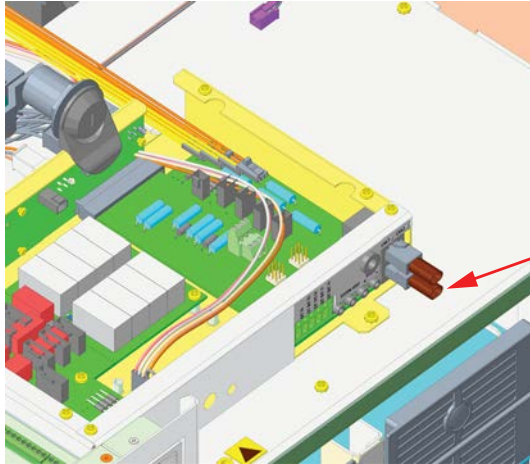
1. Locate the board at the front of the system.
2. Disconnect the terminator from the power system interface board.



**Figure 1.14 System Interface Board, P/N 556166 (For Spec. Nos. 582127000 (all Lists except List 100, 101, 102, 203, 500, 501, 502, 503, 600, 601, 900, 901, 930, 931))**

Follow the below steps for the power system Spec. No. 582127000 (all Lists except List 100, 101, 102, 203, 500, 501, 502, 503, 600, 601, 900, 901, 930, 931).

1. Locate the board at the front of the system.
2. Disconnect the terminator from the power system interface board.

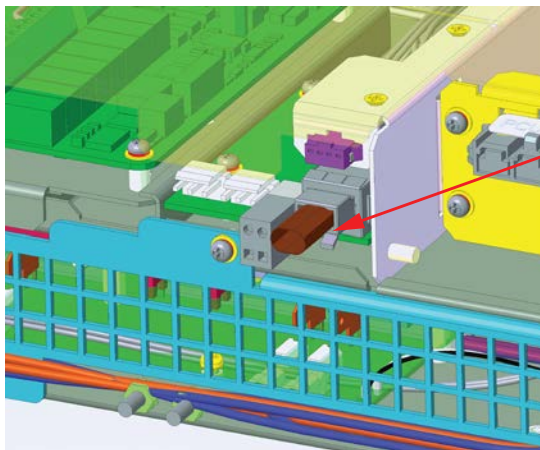


Remove this lower RJ-45 termination from the interface board.

**Figure 1.15 System Interface Board, P/N 562209 (For Spec. No. 582137200)**

Follow the below steps for the power system Spec. No. 582137200.

1. Remove the rear panel of the power system.
2. Locate the board at the rear of the system.
3. Disconnect the terminator from the power system interface board.

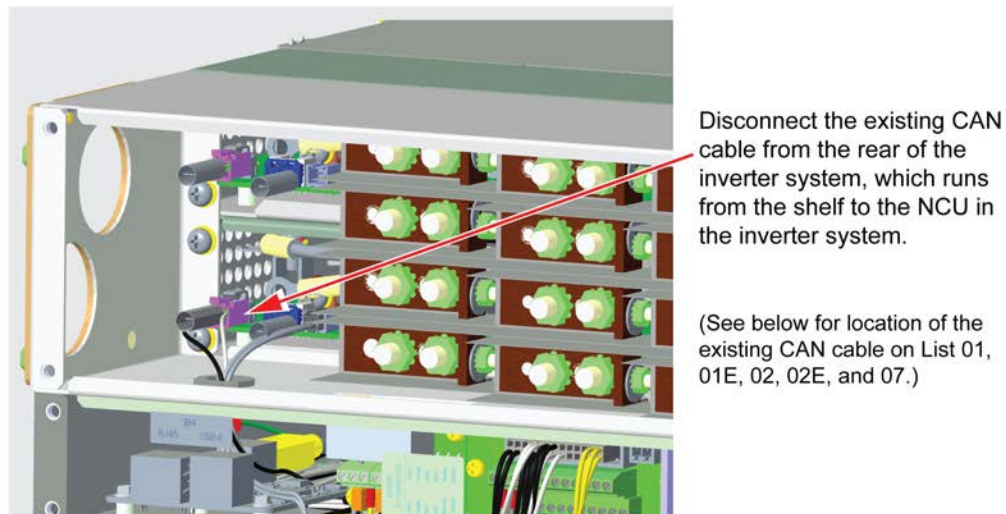


Remove this RJ-45 termination from the interface board.

- [ ] 2. Disconnect the existing CAN cable from the rear of the inverter system, which runs from the shelf to the NCU in the inverter system. See Figure 1.16.

**NOTE!** One end of the CAN cable (P/N 10153225) will be connected to this location of the inverter system, and the other end with the RJ-45 connector will be connected to the power system interface board. Refer to the next two steps for the connections of the CAN cable.

Figure 1.16 Disconnecting CAN Cable



58413010001 and 01E



58413010002, 02E, and 07

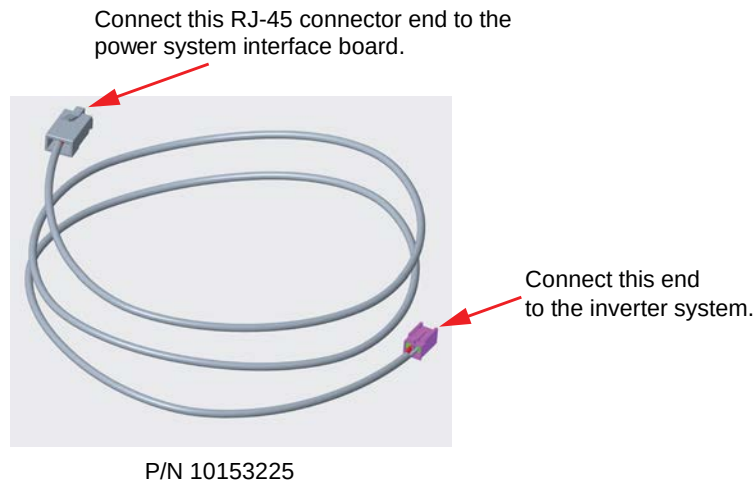


- [ ] 3. Connect the new CAN cable (P/N 10153225) with the RJ-45 end to the power system interface board. See Figure 1.17.
- [ ] 4. Connect the other end of the CAN cable (P/N 10153225) to the inverter system. Figure 1.17.



**NOTE!** Ensure the CAN cable is routed and secured safely.

**Figure 1.17 Connecting CAN Cable (P/N 10153225)**



### **Final Procedure**

- [ ] 1. Reinstall the rear panels of the inverter system with the hardware removed.
- [ ] 2. For Spec. Nos. 582127000 and 582137100: Reinstall the rear panels of the power system (if removed) and close the front door.  
For Spec. No. 582137200: Reinstall the slide out tray and secure by tightening the screw.  
For Spec. No. 582136800: Slide the IB2 Board assembly back into the shelf and tighten the captive fastener on the front of the IB2 board.

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