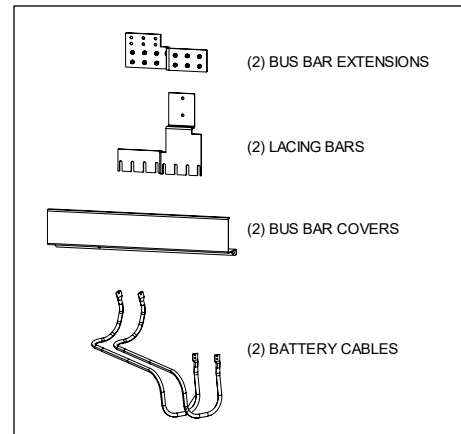


# Charles Battery Cable Kit

## 97-SAFTBBKITAKK

### General Description and Installation

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**Figure 1 Cables**

## 1. GENERAL INTRODUCTION

### 1.1. Document Purpose

This document provides general information for the 97-SAFTBBKITAKK battery cable and bus bar extension kit for Charles Industries battery backup units. Figure 1 shows the kit components.

*-NOTE-*

*Hereafter, the Charles 97-SAFTBBKITAKK battery cable and bus bar extension kit will be referred to as the "kit." The Charles Universal Broadband Enclosure battery backup series cabinets will be referred to as the "BBCUBE." The Charles Universal Broadband Enclosure site support series will be referred to as the "SSCUBE."*

### 1.2. Product Purpose

The kit includes battery cables (power and return) for connecting between the BBCUBE rear bus bars and the SSCUBE power system.

The kit also includes a pair of bus bar extension panels that add three extra connection points to the power and return bus bars on the BBCUBE, as well as lacing bars to support the cables and replacement bus bar covers to protect both the original bus bar and the extension.

## 2. INSTALLATION

### 2.1. Inspecting the Product

The kit is shipped in a pallet. Unpack the unit and dispose of the packaging material.

*-INSPECTION NOTE-*

*Visually inspect the unit for damages prior to installation. If the equipment was damaged in transit, immediately report the extent of the damage to the transportation company.*

### 2.2. Following and Using Safety Precautions

Read the following site and safety tips, cautions, and warnings, then proceed with the paragraphs that follow.

- For installation, follow all National Electrical Codes (NEC) ANSI/NFPA 70, local, environmental, workplace, and company codes, safety procedures, and practices.
- Minimum spacing between the accessories and components and the housing for ITE equipment shall be maintained for safe operation of the equipment when installed in accordance with NEC ANSI/NFPA 70.
- Read all instructions, warnings and cautions on the equipment and in the documentation shipped with the product.
- Do not place this product on weak or unstable surfaces which may allow the product to fall, resulting in potentially serious damage(s) to persons or product.
- Only authorized trained personnel shall install the kit.
- In windy conditions, be sure to engage the door latches to secure the door in a stationary position.

### 2.3. Obtaining Tools and Equipment

Obtain the following recommended or needed items for installing the kit.

- Protective and/or insulated work gloves
- Safety glasses
- #6 ground wire or rod and earth ground materials
- Any exterior cable strain relief, per company practice
- Slotted, hex, and Phillips screwdrivers
- Assorted cable ties, clips, or fasteners (optional)
- Can wrench (216 type tool)
- Torque wrench


### 2.4. Mounting the Kit

#### 2.4.1. Torque Requirements

Torque all hardware as shown below (unless otherwise noted). These values apply to SAE Grade 1 & 2 Low Carbon Steel, ASTM A307 Low Carbon Steel, and Stainless Steel Grade 18-8.

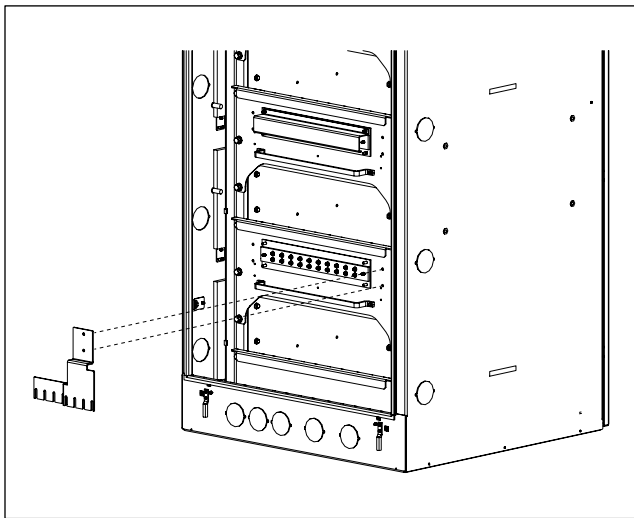
Thread Size	In-lbs	Ft-lbs
4-40	4±10%	
6-32	8±10%	
8-32	16±10%	
10-32	26±10%	
12-24	50±10%	
1/4-20/M6	60±5%	5±5%
5/16-18	125±5%	10.4±5%
3/8-16	180±5%	15.0±5%
1/2-13	500±2%	41.7±2%
5/8-11	1000±1%	83.3±1%

2.4.2. *Installing the Bus Bar Extensions, Lacing Bars, and Bus Bar Covers*

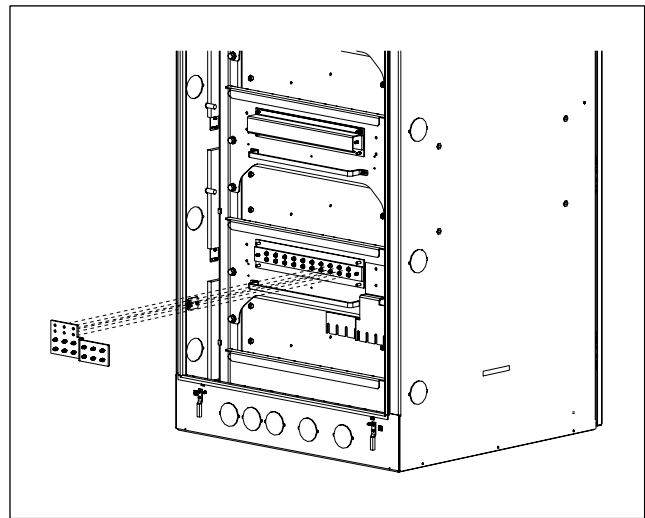
	<p><b>DANGER</b></p>	<p>Ensure that the -48V power source coming into the cabinet has been shut off at the source prior to installing the kit.</p>
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1. Use a can wrench to remove the rear cover panel from the BBCUBE. Set the panel aside.
2. Remove the existing cover from one bus bar on the back of the BBCUBE battery tray. Keep the cover hardware. Store or discard the cover per company practice.
3. Mount one kit lacing bar to the rear battery retaining bracket, to the right of the bus bar (Figure 2). Use the 1/4-20 hardware that ships with the kit.
4. Mount the bus bar extension panel on the three pairs of studs at the right side of the bus bar (Figure 3). Use the nuts included on the original bus bar.
5. Attach the new bus bar cover using the hardware from the original cover (Figure 4).
6. Repeat steps 2 through 5 for the second bus bar.
7. Re-install the BBCUBE rear cover panel.

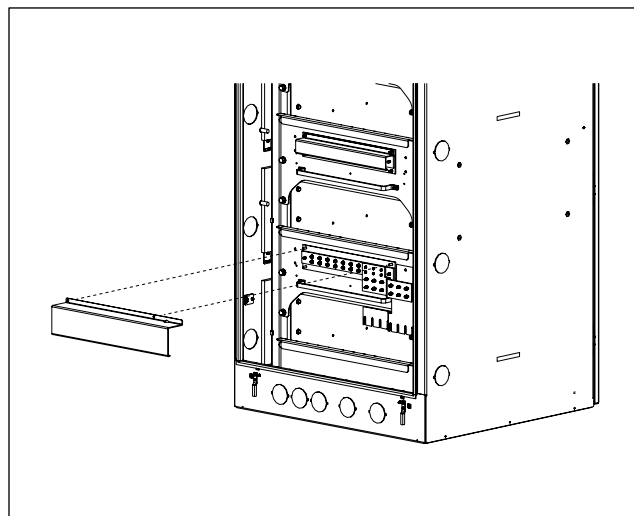
All figures show installation of the 48V Return bus bar extension. Follow the same steps to install the -48V Power bus bar extension.



**Figure 2 Lacing Bar**



**Figure 3 Bus Bar Extension**



**Figure 4 Bus Bar Cover**

2.4.3. Application Example

Figure 5 shows an application for installing this kit between an SSCUBE and a BBCUBE.

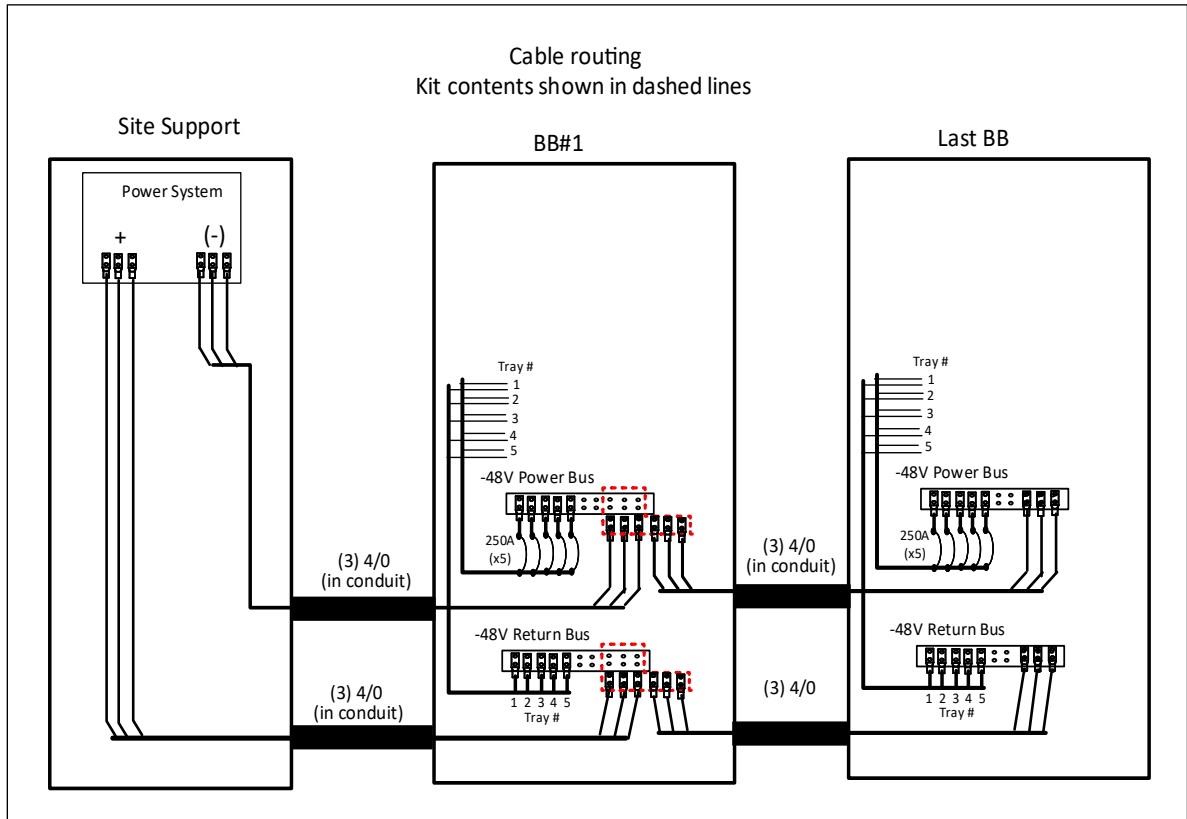


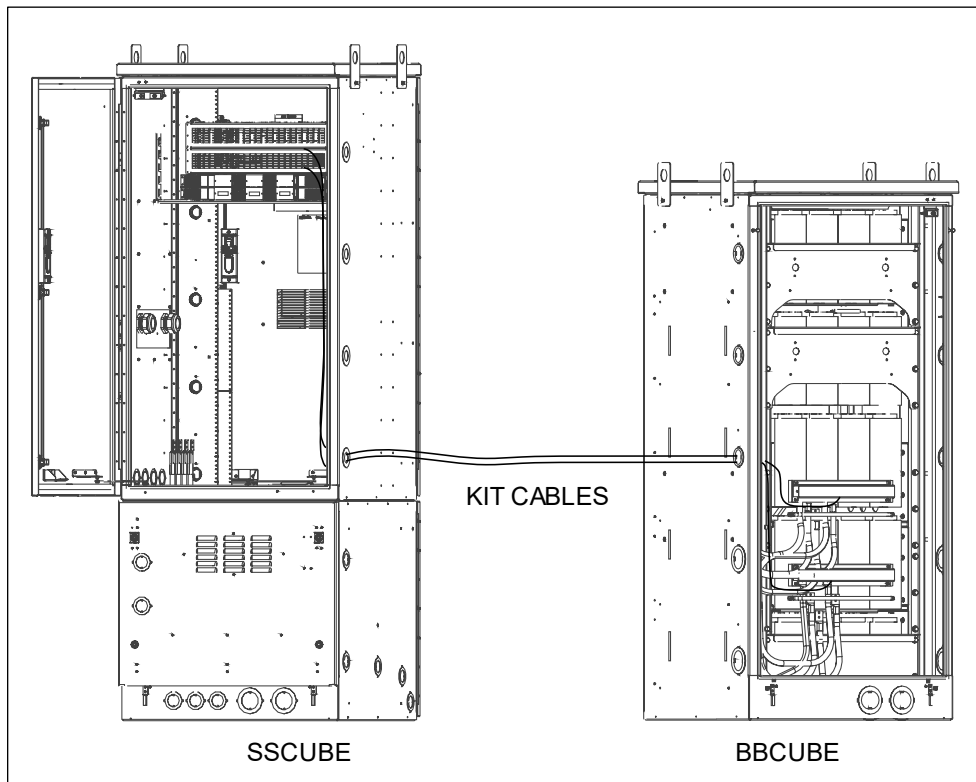
Figure 5 Bus Bar Cover

**2.4.4. Installing the Cables**

1. Turn off all power to the both the SSCUBE and the BBCUBE.

	<b>DANGER</b>	<b>Verify power is off before touching the battery terminals. Failure to comply can result in electrical shock, injury, or death.</b>
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2. Use a can wrench (216 tool) to remove the BBCUBE rear panel to access the power and return bus bars. Open the rear door of the SSCUBE equipment compartment to access the power shelf bus bars.
3. Create a conduit path between the cabinets using the knockouts provided on the cabinet sides. Use the closest or most convenient knockouts and install per local practices.
4. Connect one end of the power cable included with the kit to the power bus bar on the BBCUBE. Connect one end of the return cable included with the kit to the return bus bar on the BBCUBE.
5. Route the cables through one or more knockouts on the side of the BBCUBE and into the corresponding knockouts on the SSCUBE (Figure 6). Use the 2" conduit bushings, nipples, and sealing rings to seal the knockouts on each cabinet.
6. Connect the lugs on the other ends of the cables to the power and return bus bars on the SSCUBE.
7. Replace the rear panel on the BBCUBE and close the rear door on the SSCUBE.
8. Apply power to both CUBEs.



**Figure 6**  
**Route Cables Between BBCUBE and SSCUBE**

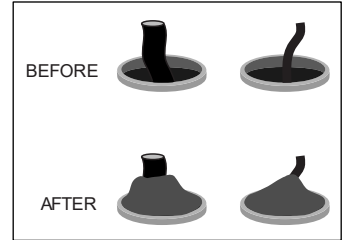
**2.5. Conduit Seals**

All conduit openings on the CUBE must be completely sealed with a duct seal compound to prevent moisture from entering the CUBE. Use a moldable, flame-retardant putty style duct seal material. Do not use an expanding foam seal. Mold the putty so that the open space around the wire or conduit is completely sealed, as shown in Figure 7. If the openings must be accessed at any time, remove the putty and set it aside. When work is complete, re-mold the putty to re-seal the opening.

**3. TECHNICAL ASSISTANCE AND REPAIR SERVICE**

For questions on product repair or if technical assistance is required, contact Charles Technical Support.

847-806-8500  
[techserv@charlesindustries.com](mailto:techserv@charlesindustries.com) (email)  
<http://www.charlesindustries.com/techserv.htm>



**Figure 7 Applying Putty Seal**

**4. WARRANTY & CUSTOMER SERVICE**

Charles Industries LLC offers a one-year warranty on the kit product. The Charles warranty is limited to the operation of the kit hardware as described in this documentation and does not cover equipment which may be integrated by a third party. The terms and conditions applicable to any specific sale of product shall be defined in the resulting sales contract. For questions on warranty or other customer service assistance, contact your Charles Customer Service Representative.

847-806-6300  
[mktserv@charlesindustries.com](mailto:mktserv@charlesindustries.com) (email)  
[http://www.charlesindustries.com/main/telecom\\_sales\\_support.htm](http://www.charlesindustries.com/main/telecom_sales_support.htm)

**5. SPECIFICATIONS**

**5.1. Regulatory Specifications**

If CUBEs are field-modified, a customer provided ETL field evaluation of the modified components may be required to re-establish ETL certification to UL standards. Consult local jurisdictions for guidance on a site-by-site basis.

**5.2. Product Specifications**

<b>Cables</b>	
Cable Description	Power and return, 16 feet long, 4/0AWG , with lugs at each end
Cable Color	Black
<b>Bus Bar Extensions, Lacing Bars, Bus Bar Covers</b>	
Weight	Approx. 9 lbs. as shipped
Materials	Lacing bar: 0.125" aluminum Cover: polycarbonate Extension panel: copper and stainless steel
Color	Off-white
Touch-up Paint	02-000290-0

**Table 1 Kit Specifications**