

Dual 600A BDFB / BDCBB Model 007-0001-2600

User Manual



Dual 600A BDFB / BDCBB

Model 007-0001-2600

User Manual, Part Number 122645-5

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1730 N Madson St., Liberty Lake, Washington

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Telect offers complete solutions for physical layer connectivity, power, equipment housing and other network infrastructure equipment. From outside plant and central office to inside the home, Telect draws on more than 25 years of experience to deliver leading edge product and service solutions. Telect is committed to providing superior customer service and is capable of meeting the dynamic demands of customer and industry requirements. This commitment to customer and industry excellence has positioned Telect as a leading connectivity and power solution provider for the global communications industry.

Technical Support

E-mail: getinfo@telect.com

Phone: 888-821-4856 or 509-921-6161

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Table of Contents

Chapter 1: Dual 600A BDFB/BDCBB Description	1
1.1 Overview	1
1.1.1 Capabilities	1
1.1.2 Features	2
1.2 Specifications	5
Chapter 2: Installation	13
2.1 Installation Considerations	13
2.1.1 Tools and Equipment	13
2.1.2 Bay Layout	13
2.2 Inspection	13
2.3 Panel Installation	14
2.4 Cable Installation	18
2.4.1 Install Ground Cabling	18
2.4.2 Install Input Cabling	19
2.4.3 Install Intrabay & Interbay Cabling	22
2.4.4 Install Alarm Cabling	22
2.4.5 Test Inputs & Alarms Without Breakers	24
2.4.6 Install Output Cabling	24
2.5 Circuit Breaker Installation	26
Chapter 3: Output Testing.....	29
Chapter 4: Service	31
4.1 Owner Maintenance	31
4.2 In-Warranty Service	31
4.3 Out-Of-Warranty Service	31
4.4 Repacking for Shipment	31
Chapter 5: Accessories	33

List of Figures

Figure 1 - Battery Distribution Fuse Board	1
Figure 2 - Front	3
Figure 3 - Rear	4
Figure 4 - Rear, Top, and Front Views	8
Figure 5 - Left Side View	9
Figure 6 - Schematic 1	10
Figure 7 - Schematic 2	11
Figure 8 - Dual 600A Front Bay Corner	13
Figure 9 - Removing the Rear Cover	14
Figure 10 - Changing the Feed	15
Figure 11 - Removing the Adapter Plate	16
Figure 12 - Threading the Fasteners	17
Figure 13 - Connecting the Lug	19
Figure 14 - Securing the Lugs.....	21
Figure 15 - Securing the Input RTN	22
Figure 16 - Installing Alarm Cabling	23
Figure 17 - Routing and Restraining Cables	25
Figure 18 - Removing the Blank Plate	26
Figure 19 - Connecting the Faceplate to the Breaker	27
Figure 20 - Alarm Panel	29

Chapter 1: Dual 600A BDFB/BDCBB Description

1.1 Overview

Telect's Dual 600A Battery Distribution Fuse Board / Circuit Breaker Board (BDFB / BDCBB), Model 007-0001-2600, contains two non-shared sets of input buses. Both sets of -48VDC/RTN input buses are capable of 600A primary distribution feed to 18 circuit breaker output positions.

The open-frame architecture of the BDFB / BDCBB allows unrestricted top-down or bottom-up cabling of inputs and outputs.



Figure 1 - Battery Distribution Fuse Board

The front panel contains 18 circuit breaker positions per feed for a total of 36 per panel.

Each position accepts a standard “bullet terminal” circuit breaker rated up to 100A, with the capability of pairing adjacent breakers for dual-pole outputs of up to 150A. Vdc Power LED, Fuse Alarm LED, and input voltage test points on the standard removable alarm panel provide input/feed monitoring. (Input current test points require an optional shunt and cabling. Optional removable alarm panels provide digital voltage and current meters. Contact telect.com for availability. [See “Accessories” on page 33.]

Telect's Dual 600A BDFB / BDCBB fits standard 19 in. or 23 in. racks set up for either EIA or WECCO mounting. Up to four panels can be arranged in a bay to provide up to 2400A per feed (4800A per bay). (When installing four panels in a bay, a 23-in. bay is better than a 19-in. bay for reducing cable congestion.)

1.1.1 Capabilities

1.1.1.1 Each Panel

- Dual Feed
- 600A (Max., Continuous) Per Feed
- 800A (Max.) Interrupt Device Per Feed
- 18 Outputs Per Feed; 36 Outputs Per Panel

1.1.1.2 Full Bay of Four Panels

- Dual feed
- 2400A (Max., Continuous) per feed
- 3200A (Max.) Interrupt Device per feed
- 72 Outputs per feed; 144 Outputs per bay

1.1.2 Features

- Suitable for primary or secondary distribution
- Modular design expands capability of rack to as much as 4800A.
- Open architecture provides easy input/output cabling
- Top-down or bottom-up cabling
- Standard “bullet terminal” circuit breakers (up to 100A per position)
- Breaker shunting allows double-pole, single distribution up to 150A.
- Alarm and BATT monitor overcurrent protection

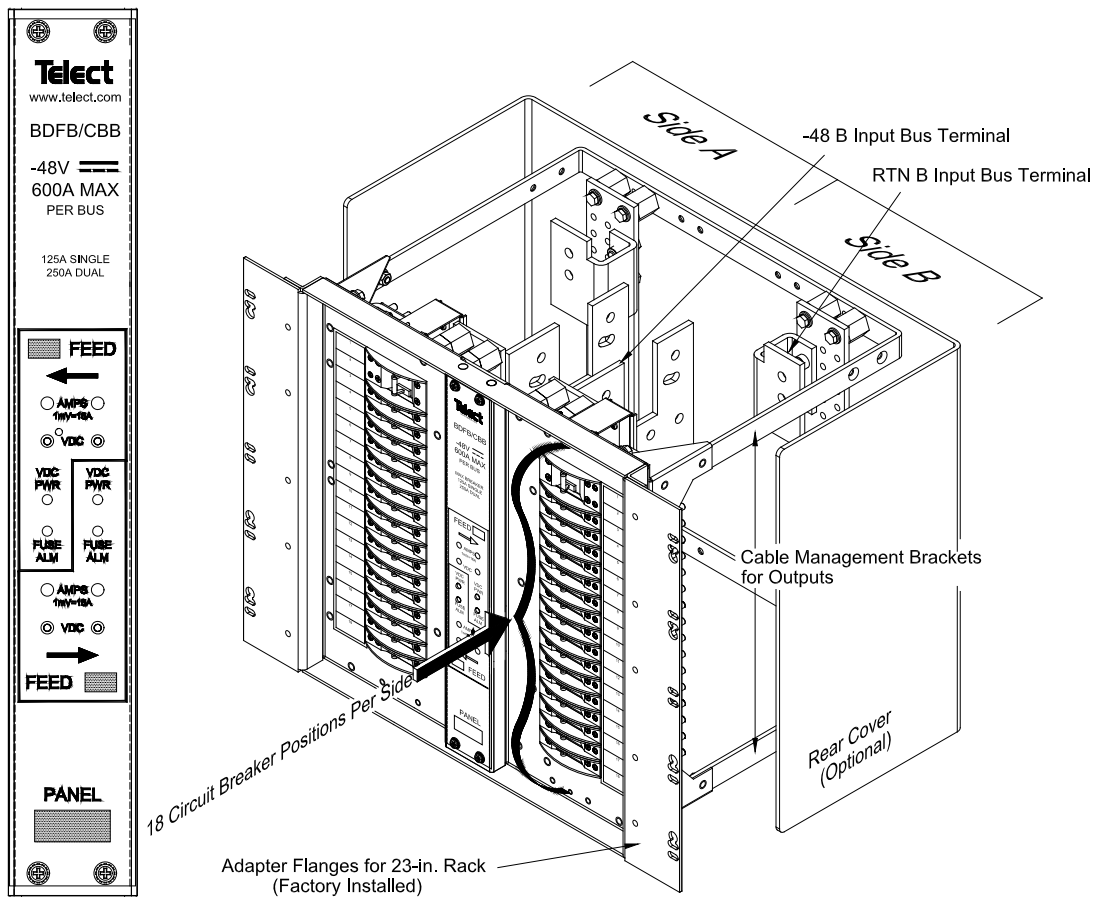


Figure 2 - Front

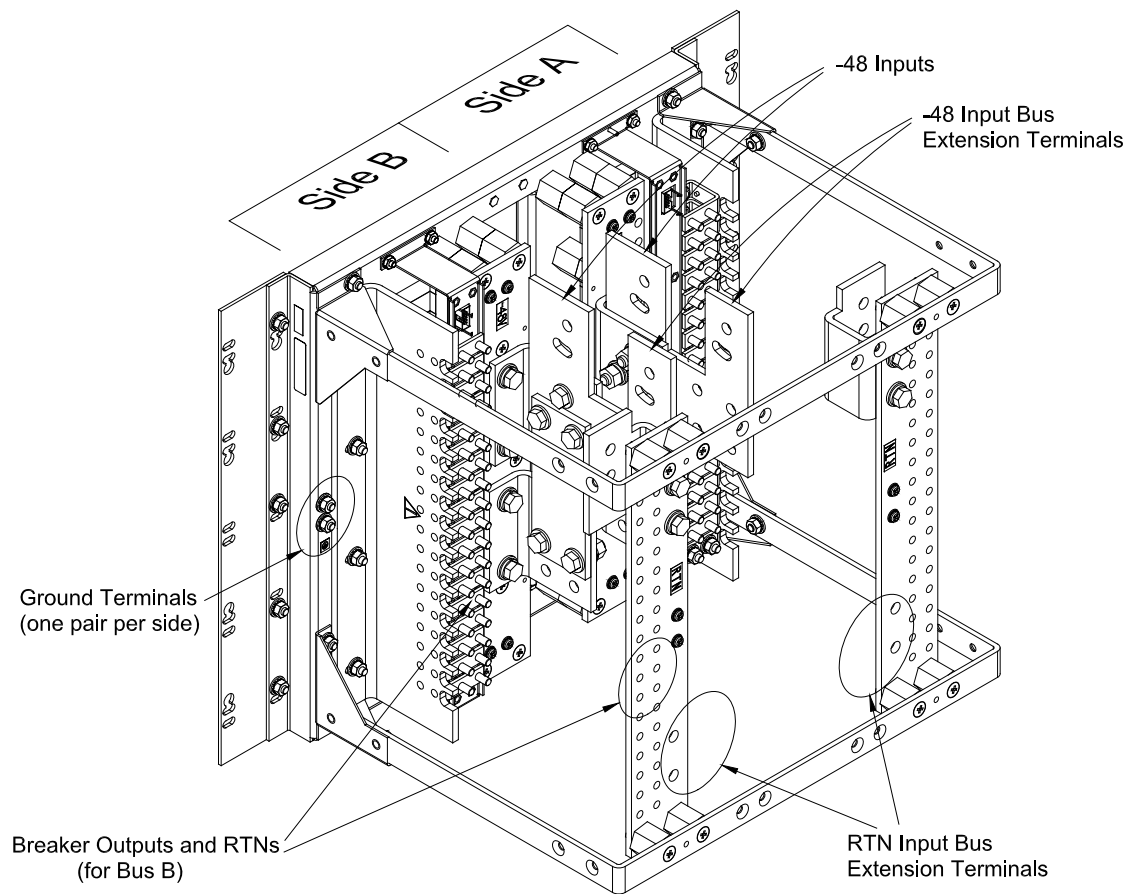


Figure 3 - Rear

1.2 Specifications

Mechanical Interface:	Specifications:
Ground Terminals	<p>Quantity: 2 Pair</p> <p>Stud Size: 1/4 in.</p> <p>Cable Size: Up to #1/0 AWG (one per lug), depending on input interruption device.</p> <p>Lug: Dual-hole compression lug with 1/4 in. dia. holes (7 mm) on 3/4 in. (19 mm) centers^a</p> <p>Lug Fasteners: 1/4 - 20 KEPS nuts and flat washers</p> <p>Socket Size for Nut: 7/16 in. (12 mm)</p> <p>Maximum Torque: 6 ft-lb (8.13 N•m)</p>
Input Terminal Bus Plate	<p>Number of Plates: Total 4: 1 BATT & 1 RTN per feed. Each terminal plate capable of supporting up to two, dual-hole input lugs (standard configuration)^b.</p> <p>Hole Size in Plate: 406 in. dia. (10 mm) on 1 in. (25.4 mm) centers</p> <p>Cable Size: One 750/777.7MCM (max.) per -48Vdc or RTN lug. (Size of cable depends on size of input interruption device and plant voltage drop requirements.)</p> <p>Lug: Dual-hole compression for hole and cable size specified above^c</p> <p>Lug Fasteners: Grade 2, 3/8 - 16 bolts, nuts, lock washers, and flat washers</p> <p>Socket Size: 9/16 in. (14 mm) for bolt heads and nuts</p> <p>Maximum torque: 17 ft-lb (~23 N•m)</p>
Output Breakers & Terminals	<p>Breakers: Total 36 (18 per feed), bullet-style</p> <p>Terminals:</p> <p>Quantity: One per single or double breaker</p> <p>Stud Size: 1/4 in.</p> <p>Cable Size: <ul style="list-style-type: none"> • For single-pole breakers, one, #2 AWG (max.) per lug • For double-pole breakers, one, #1/0 AWG (max.) per lug^d </p> <p>Lugs: Dual-hole compression with 1/4 in. dia. holes on 3/4 in. (19 mm) centers^b</p> <p>Lug Fasteners: 1/4 - 20 KEPS nuts and flat washers</p> <p>Socket Size for Nut: 7/16 in. (12 mm)</p> <p>Maximum torque: 6 ft-lb (8.13 N•m)</p>

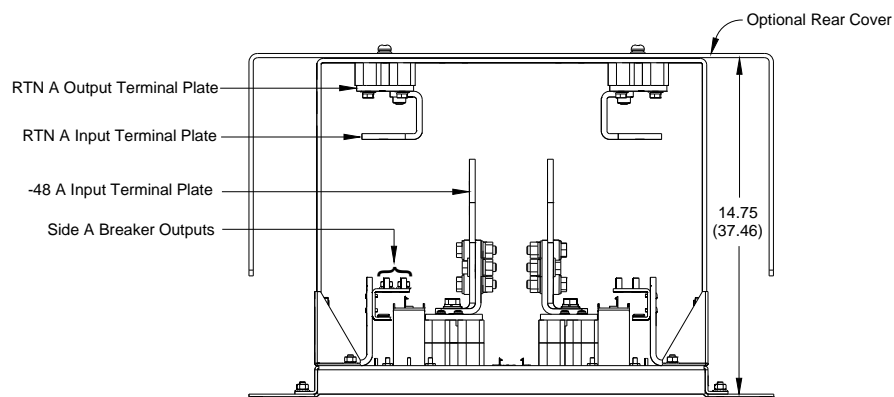
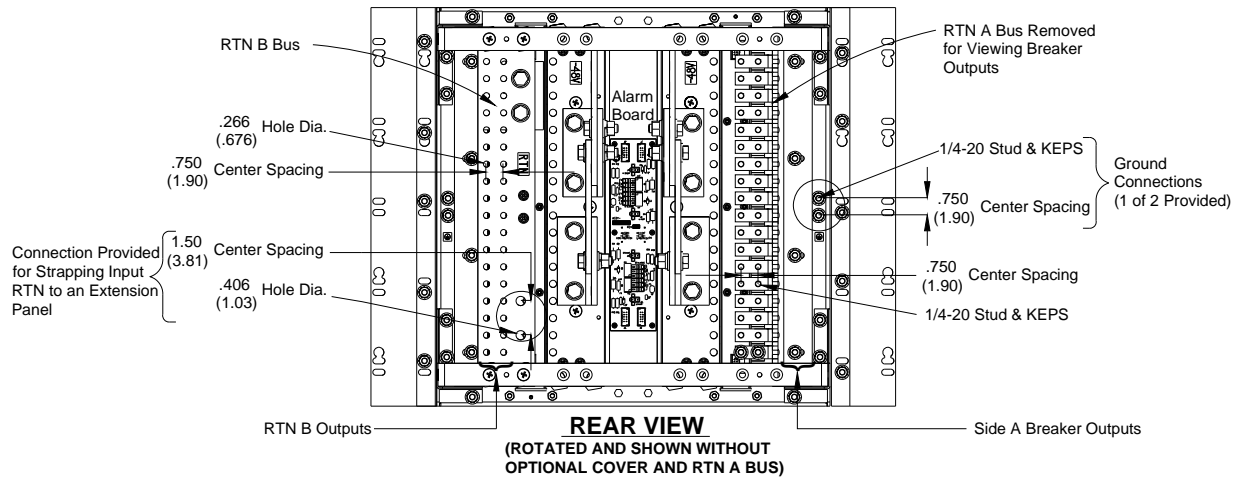
Mechanical Interface:	Specifications:
Output RTN Terminal Bus Plate	<p>Number of Plates: One bus plate per feed accommodates 18 output RTN lugs</p> <p>Hole Size in Plates: 1/4 in. dia. (7 mm) on 3/4 in. (19 mm) centers</p> <p>Cable Size: <ul style="list-style-type: none"> • For single-pole breakers, one, #2 AWG (max.) per lug • For double-pole breakers, one, #1/0 AWG (max.) per lug^c </p> <p>Lugs: Dual-hole compression for hole and cable size specified above^b</p> <p>Lug Fasteners: Grade 2, 1/4 - 20 bolts, KEPS nuts, and flat washers</p> <p>Socket Size: 7/16 in. (12 mm) for bolt heads and nuts</p> <p>Maximum torque: 6 ft-lb (8.13 N•m)</p>
Alarm Terminals, Standard	<p>Quantity: 6 contacts per side for NO or NC power and breaker (fuse) alarms</p> <p>Type: Cage clamp (WAGO style)</p> <p>Wire Size: 18-24 AWG</p>
Input Test Points (each side): Standard Test Points Optional Test Points ^e	<p>For .080-in. test probes, where BLK is meter common and RED is meter volts:</p> <p>VDC</p> <p>AMPS, where 1mV scale = 16A</p>

- See Lug Chart on 10 for suggested manufacturers.
- Up to four dual-hole input lugs with the optional RTN external bus bar extension kit.
- See Lug Chart on page 12 for approved manufacturers.
- Double-pole breakers require an optional two-pole adapter.
- Requires an optional shunt.

Electrical Interface:	Specifications:
Operating Voltages	–48Vdc nominal (-40 to –60 Vdc range)
Maximum Input Interruption Device	800A per feed
Maximum Continuous Input Load	600A per feed per panel
Maximum Output Interruption Device	100A per single-pole circuit breaker 150A per double-pole circuit breaker
Maximum Continuous Output Load	80A per single-pole circuit breaker 120A per double-pole circuit breaker
Max. Voltage Drop	.25Vdc
Max. surface temperature of breakers at 26°C (79°F) ambient	37°C (99°F)
Max. panel heat dissipation at full load	225W/m ² per meter (20.9W/ft ² /ft)

Electrical Interface:	Specifications:
Percentage of full load heat dissipation	Less than 0.5%
Alarm Relay Contacts	2A @ 30 Vdc 0.6A @ 60 VDC
Max. Alarm Card Power Rating	@20V: 35 mA (0.70 W) @20V: 35 mA (0.70 W) @24V: 44 mA (1.06 W) @27V: 48 mA (1.30 W) @30V: 51 mA (1.53 W) @42V: 59 mA (2.48 W) @48V: 64 mA (3.07 W) @56V: 69 mA (3.86 W) @60V: 73 mA (4.38 W)

Physical/Environmental:	Specifications:
Weight, Shipping	~150 lb (~70 kg)
Weight Without Packaging or Breakers	63 lb (29 kg)
Rack Mounting	19 in. (482.6 mm), EIA/WECO 23 in. (584.2 mm), EIA/WECO
Operating Temperature Range	-5°C to +55°C (23°F to 131°F)
Storage Temperature Range	-40°C to +85°C (-40°F to +185°F)
Humidity	0-90%, noncondensing



Normal Breaker Layout is Shown Here.
(Panel is Shipped Without Breakers.)

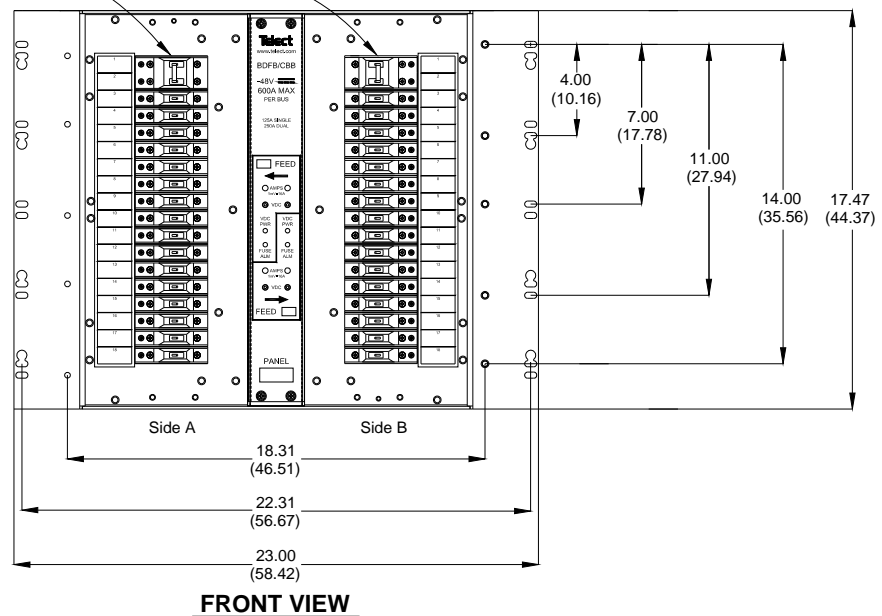


Figure 4 - Rear, Top, and Front Views

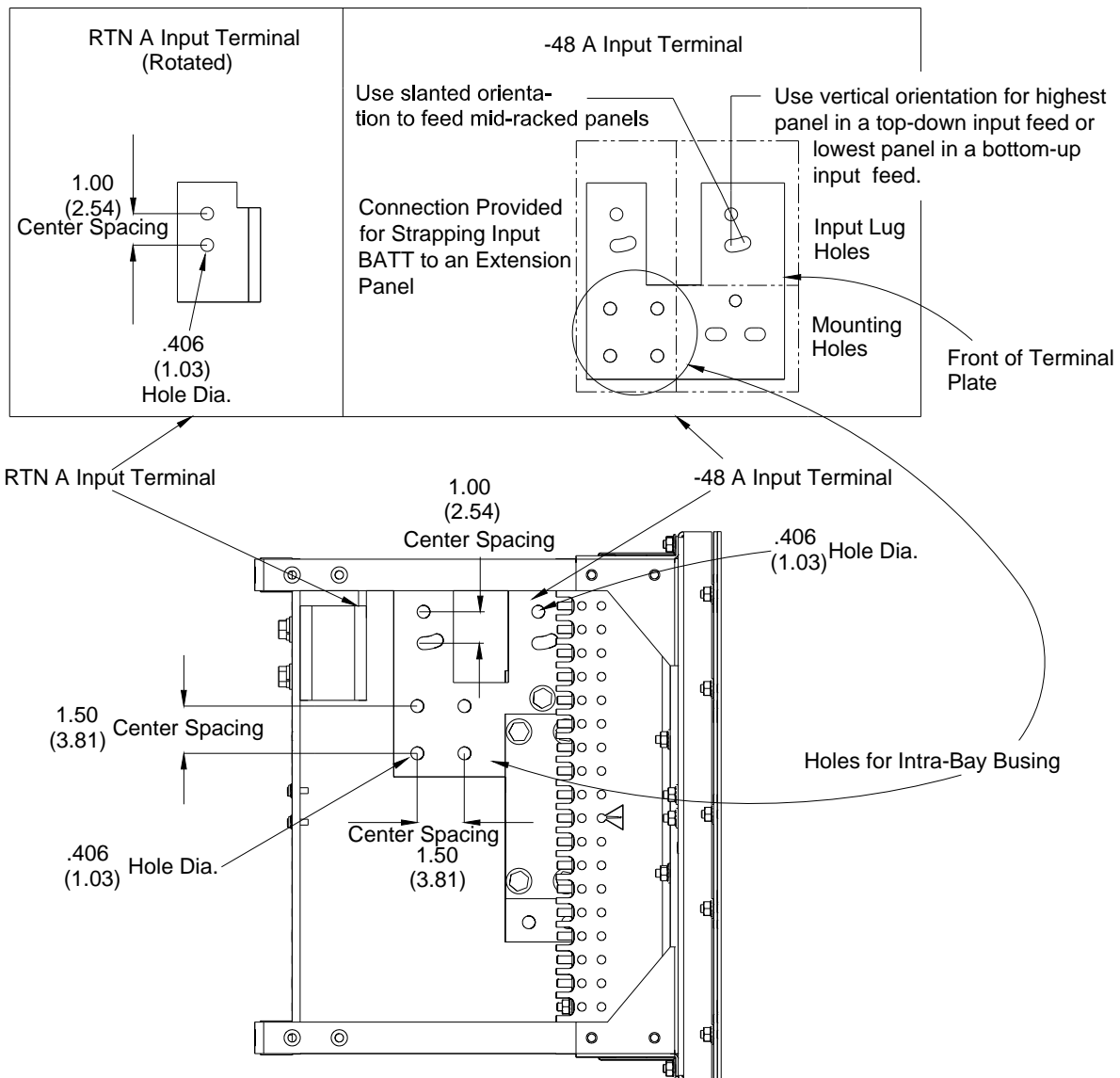


Figure 5 - Left Side View

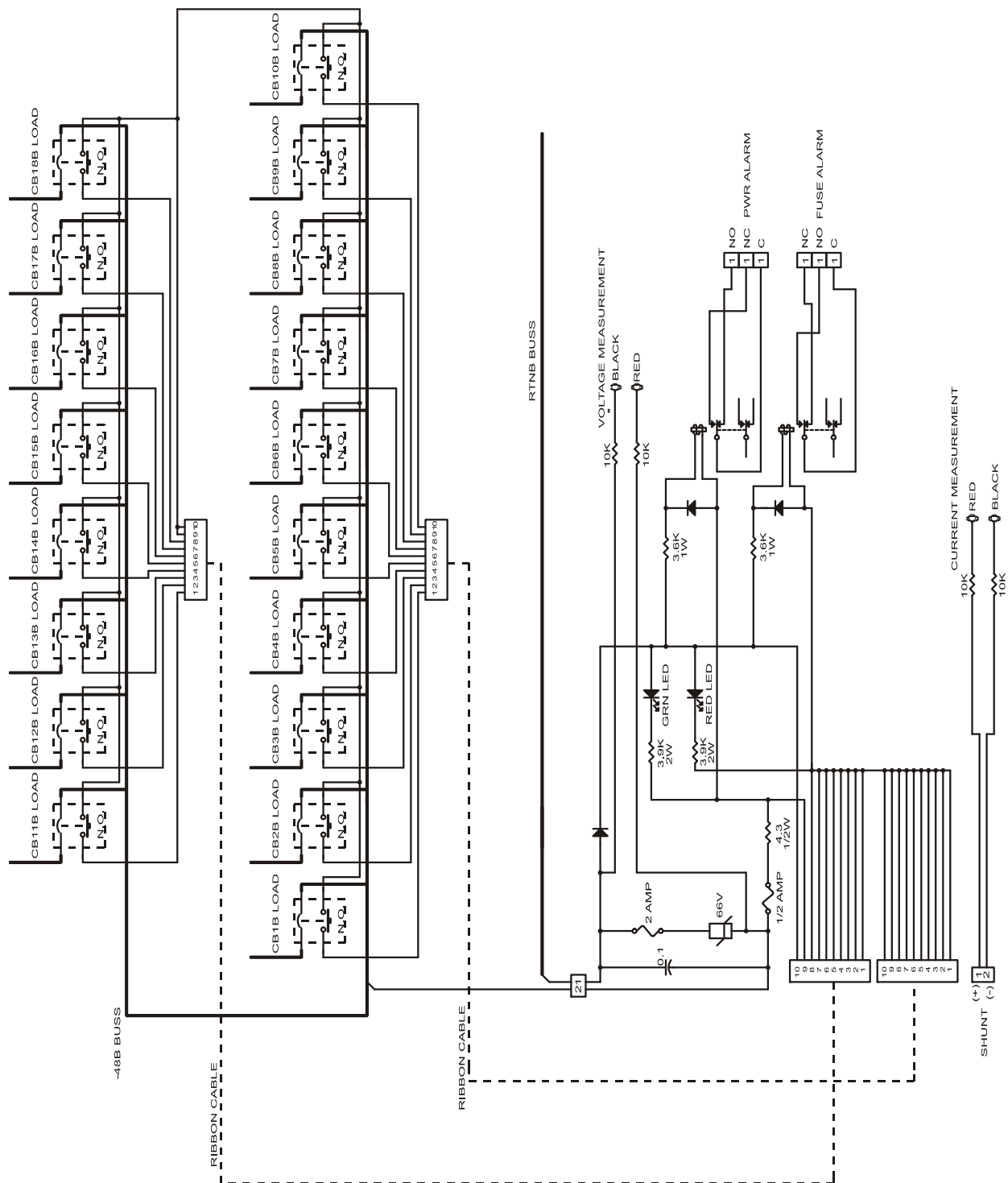


Figure 7 - Schematic 2

Table 1 - Lug Chart

Rack Ground Terminals (for #1/0 AWG)		
Flex Cable (266 Strand)	Burndy:	YAV25-L2TC14E2-FX
	Panduit:	LCD2/0-14B-X
Code Cable (19 Strand)	Burndy:	YA25L-2TC14E2
	Panduit:	LCD1/0-14B-X
Input Terminals (for 750MCM, Nominal)		
Flex Cable (1850 Strand)	Burndy:	YA44-L2NT38-FX
	T&B:	58825NT
Code Cable (61 Strand)	Burndy:	YA39L-2TC38
Load & RTN Terminals (for #2 AWG)		
Code Cable (7 Strand)	Burndy:	YA2CL-2TC14E2
	Panduit:	LCD2-14B-Q

Chapter 2: Installation

2.1 Installation Considerations

! ALERT

ALERT! Only qualified personnel may install and maintain this product. Verify that all connections meet requirements specified in local electric codes or operating company guidelines before supplying power. Protect this equipment with a fuse or breaker sufficient to interrupt power levels specified in Chapter 1 of this manual.

2.1.1 Tools and Equipment

- $\frac{7}{16}$ in. (or 12 mm) socket for $\frac{1}{4}$ -in. bolts and KEPS nuts
- $\frac{9}{16}$ (or 14 mm) socket for $\frac{3}{8}$ -in. bolts and nuts
- #2 Phillips screwdriver (screwdriver for cross-recessed screws)
- standard electrical cabling tools (cable lacing, crimping and stripping tools, cable cutters, etc.)

2.1.2 Bay Layout

In a standard bay, each BDFB / BDCBB requires 10 EIA rack positions (10 RU). Up to four BDFB / BDCBB panels can populate a bay having either 19-in. or 23-in. racks (either EIA or WECO spacing).

2.2 Inspection

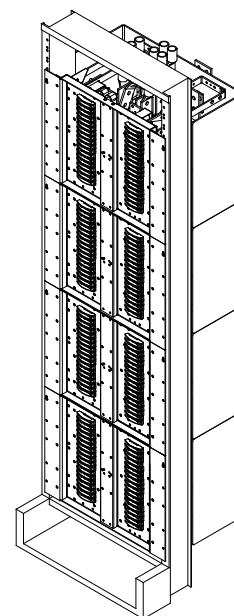
Please read these instructions carefully before beginning installation. If you need assistance, call Technical Support at 1-888-821-4856 (domestic calls), or 509-921-6161 (Option 2), or email us at getinfo@telect.com.

Inspect equipment after unpacking and compare it to the packing list.

Immediately report any shipping damage, defects, or missing parts to Telect at 1-800-551-4567. Keep all documentation that comes with your shipment.

Telect is not liable for shipping damage. If the product is damaged, notify the carrier and call Telect's Customer Service Department at 1-800-551-4567 (domestic only) or 1-509-926-6000 for further recourse.

NOTE: For service or warranty information, please visit the telect.com website, or email inquiries to getinfo@Telect.com and click on the "Support" tab, or phone us at 800-551-4567 (domestic only) or 509-926-6000.



**Figure 8 - Dual 600A
Front Bay Corner**

2.3 Panel Installation

1. If applicable, remove the optional rear cover of panel (four, $\frac{1}{4}$ -20 hexhead bolts).

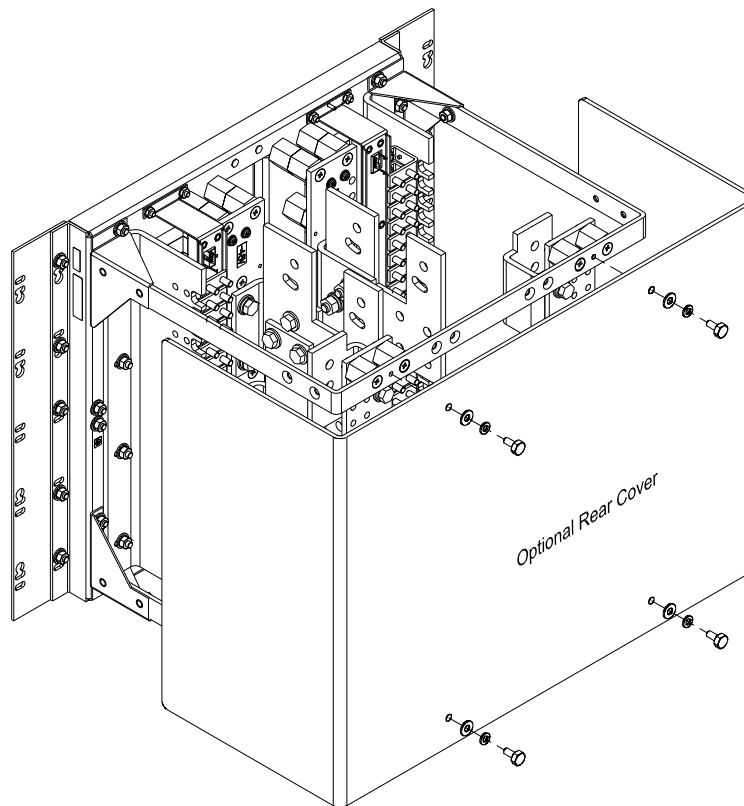


Figure 9 - Removing the Rear Cover

2. Decide if input cables will be fed from bottom-up or top-down.

NOTE: Panels are shipped from the factory for top-down input cable entrance to bay. If you intend to feed input cables from the bottom-up, you must reverse the input terminal plates, as instructed in the following procedure.

If necessary, to change *both input buses* from top-down to bottom-up input cable entrance, see Figure 10 and proceed as follows:

- a. Remove the four, $\frac{3}{8}$ -in. hex head cap screws securing each input bus assembly to the panel.
- b. Rotate this assembly for input bus A and resecure it where the bus B had been, and vice versa.
- c. Torque the bolts to 18 ft-lb (~ 24 N•m).

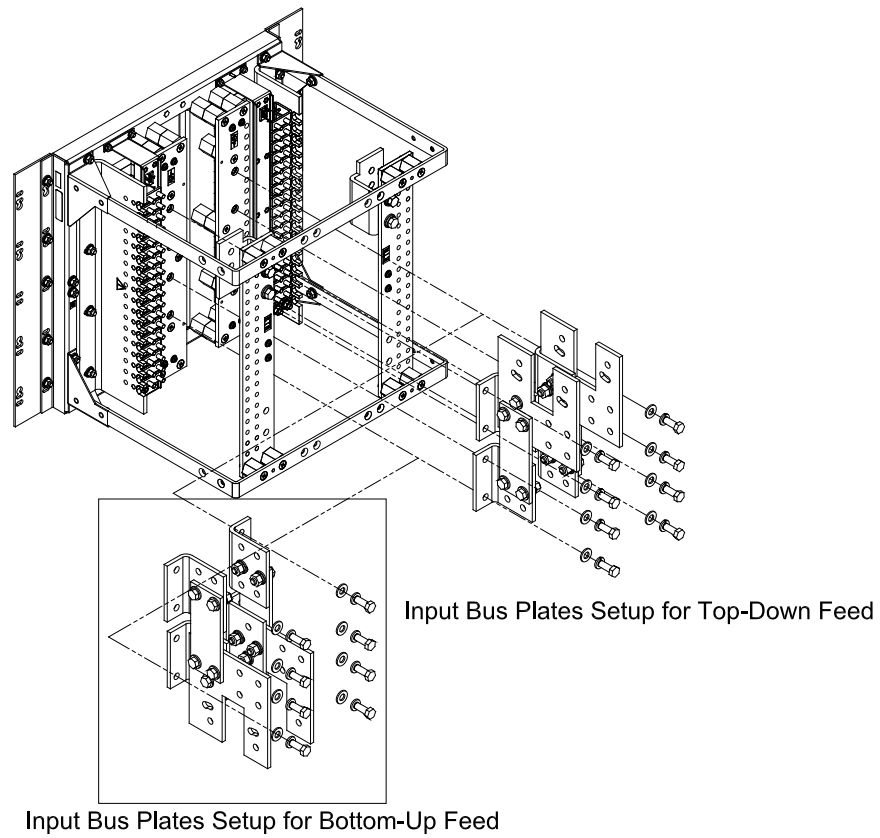


Figure 10 - Changing the Feed

3. If the panel is to be mounted to a 19-in rack, remove the adapter plate on each side of the panel (five, $\frac{1}{4}$ -20 KEPS nuts).

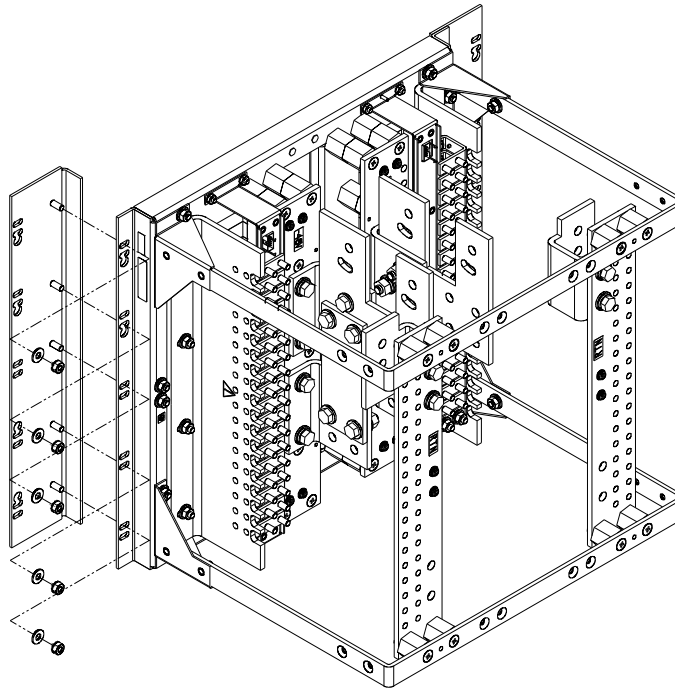


Figure 11 - Removing the Adapter Plate

4. If applicable, install optional shunts and cabling for current monitor. (See the instructions included with the shunt kit.)
5. If applicable, install optional digital metering control module in place of the standard control module. (See the instructions included with the metering control module.)

6. Partially thread the two topmost fasteners (#12-20 screws, provided) for mounting the panel onto the bay.

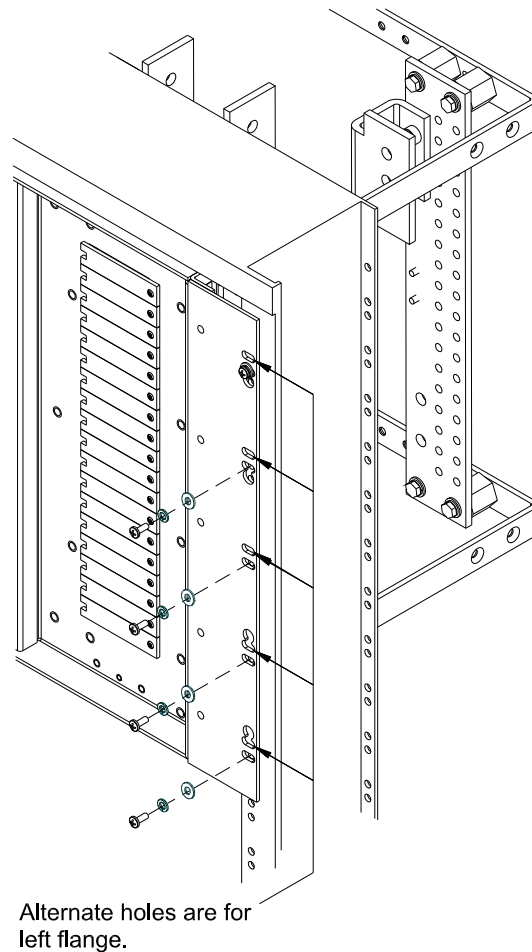


Figure 12 - Threading the Fasteners

7. Place the panel's keyhole mounting slots over the topmost fasteners.
8. Loosely secure the mounting flange with four additional fasteners along each side.
9. Torque all but the keyhole mounting fasteners to 35 in.-lb (4.29 N•m).
10. Remove the keyhole fasteners installed in Step 4, and re-install along with a flat washer and a lock washer. Torque as directed in Step 9.
11. Install all other panels in bay before cabling.

2.4 Cable Installation

Use Telect's Wire Size Guide (Part Number 117995) for help in cable selection.

NOTE: Cables must conform to local operating company guidelines as well as national, regional, and local electrical codes.

Only use components and crimping tools approved by agencies or certifying bodies recognized in your country or region such as Underwriter's Laboratories (UL), TUV, etc.

Follow the prescribed order in this subsection to install and test all cabling and alarm features:

- 2.4.1 Install Ground Cabling
- 2.4.2 Install Input Cabling
- 2.4.3 Install Intrabay & Interbay Cabling
- 2.4.4 Install Alarm Cabling
- 2.4.5 Test Inputs and Alarms Without Circuit Breakers
- 2.4.6 Install Output Cabling

2.4.1 Install Ground Cabling



DANGER

DANGER! Failure to properly ground this equipment can create hazardous conditions to installation personnel and to the equipment.

A ground terminal is located near each of the panel's mounting flanges. You need only connect to one of the grounds, as shown in Figure 13.

1. Use a UL-approved crimping tool to attach a UL-approved, 2-hole compression lug onto a ground wire.

Size of ground depends on input interruption device. (Refer to NEC Article 250-122 or IEEE grounding guidelines. Also, check operating company guidelines.)
2. Lightly coat anti-oxidant electrical joint compound on lug, grounding terminal, and surrounding contacting surface.

3. Then, connect the lug to the terminal using $\frac{1}{4}$ -in. KEPS nuts and washers from the studs.

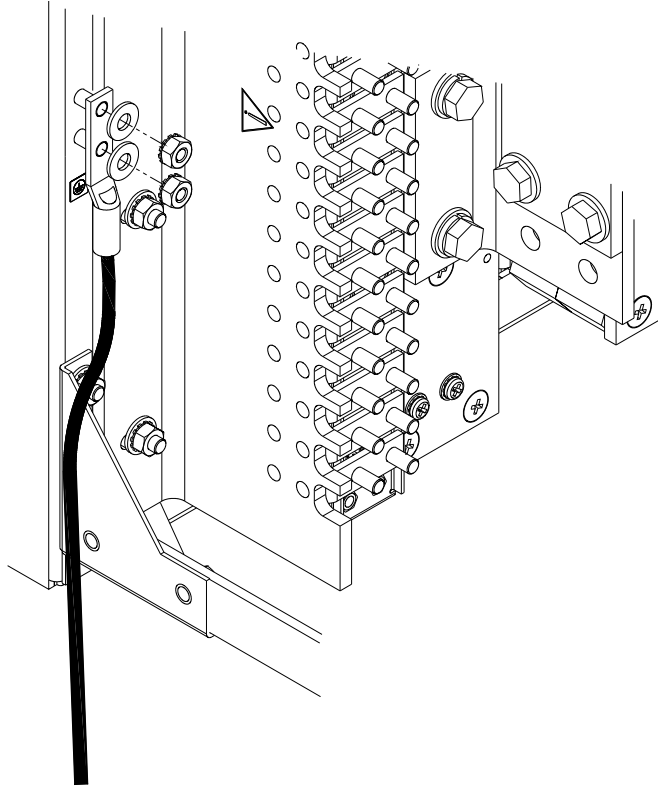


Figure 13 - Connecting the Lug

4. Torque the ground connection to 6 ft-lb (8.13 N•m).
5. Likewise, secure the connectorized opposite end of the ground cable to a bare metal portion of the bay's frame or the conductor-to-office-ground system. (If necessary, scrape paint from the frame and use electrical joint compound to ensure good ground contact.)

2.4.2 Install Input Cabling

- For top-down input feeds, begin cabling to the topmost panel and then work your way down the bay.
- For bottom-up input feeds, begin at the bottom and work your way up the bay.

Finish all input cabling in a bay before beginning any output cabling in that same bay.

NOTES:

- Keep in mind that Feeds A and B are independent (unshared) feeds.
- Input cabling to the BDFB / BDCBB must support 125% of the total, rated, continuous load currents of the equipment powered by the BDFB / BDCBB. Remember: The maximum continuous load per feed is 600A.

- Consider inherent voltage drop in determining input wire size. Remember to choose wire size based on the circuit breaker/fuse size and **not** on the expected load. Use the standard formula to check wire size:

$$\text{Max.Vdc Drop} = \frac{(11.1) \times (\text{fuse size}) \times (\text{total wire length in ft})}{(\text{circular mils of wire used})}$$

Proceed as follows to cable inputs to each side of the panel:

1. Use a UL-approved crimping tool to attach a UL-approved, dual-hole 750/777.7 MCM compression lugs onto appropriate cables.
2. Insulate the lug barrels as required.
3. Clean the terminals and lugs with a nonabrasive, nonmetallic pad.
4. Feed input cabling down (or up for a bottomfeed) into the rear central area of the panel — that is, between the output cable management brackets — to the topmost BDFB / BDCBB (or bottommost for an upfeed).
5. Lightly coat anti-oxidant electrical joint compound on lugs and -48 input terminal plates.
6. Use a ³/₈-16, grade 2 bolt, washers, and nut (all provided) to secure the first pair of -48 cabling to the -48 input bus terminal plate:
 - If you use two lugs, remember to attach lugs to opposite faces of the terminal plate. **DON'T STACK LUGS** on one side of the terminal plate.
 - Always route cables in a neat, orderly manner to ensure that the cables exert no pulling or twisting forces on the input and return terminal plates. **DON'T ALLOW TERMINAL PLATES** to support the weight of or to restrain the cable.

NOTE: The input lugs on the topmost terminal (or bottommost for an upfeed) are connected, as shown on the following page, so that the lugs are held straight up on the sides of the terminal plate. Subsequent cables and lugs to the inbetween panels in the bay can be pivoted up to 25° off of vertical to allow easier cable management access throughout the bay.

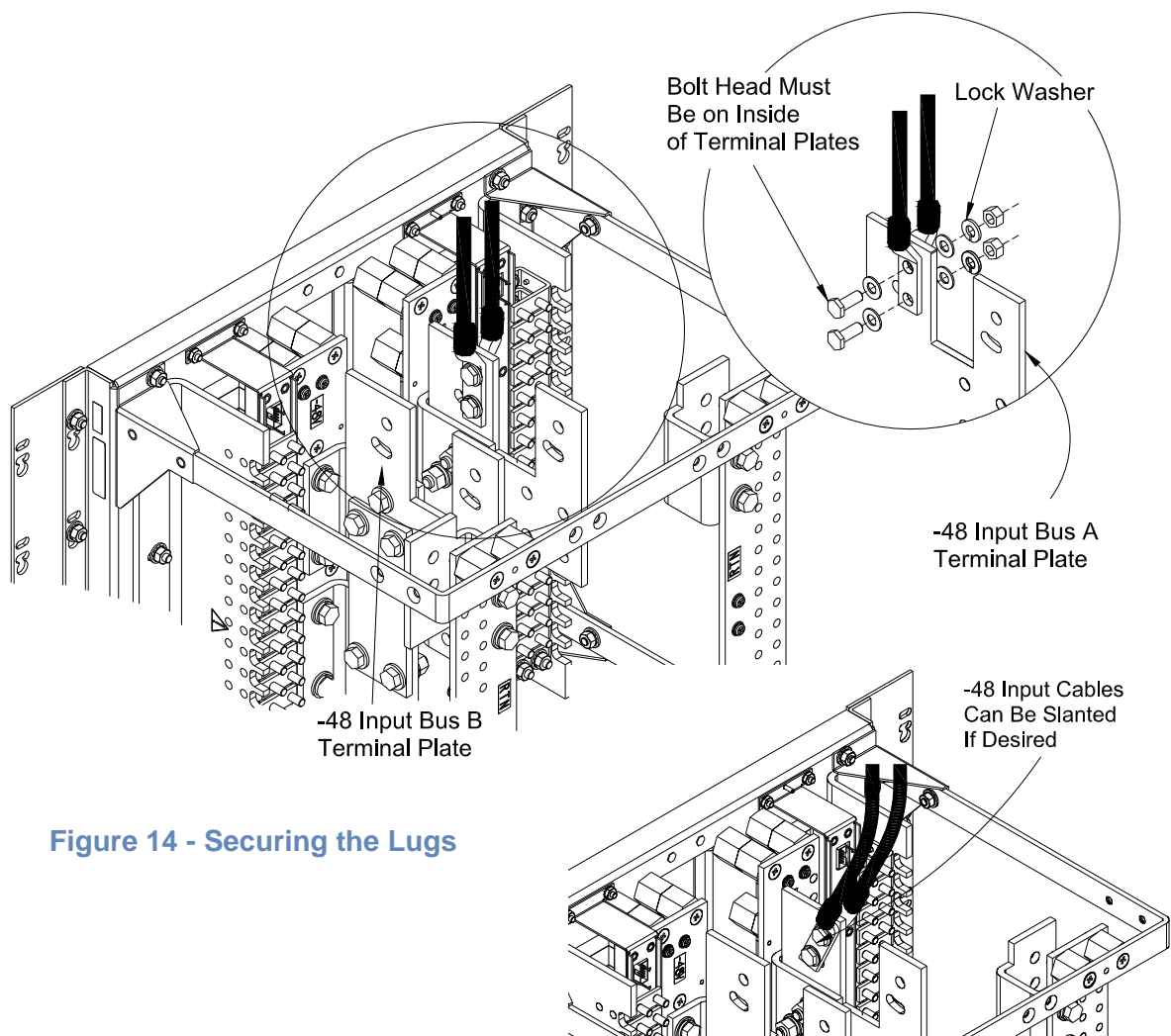


Figure 14 - Securing the Lugs

7. Torque input BATT connections to 36 ft-lb (48.81 N•m).
8. In a similar fashion, for the input RTN,
 - a. Use a UL-approved crimping tool to attach a UL-approved, dual-hole 750/777.7 MCM compression lugs onto appropriate RTN cables.
 - b. Insulate lug barrels as required.
 - c. Clean the RTN terminal plate and lugs with a nonabrasive, nonmetallic pad.
 - d. Lightly coat anti-oxidant electrical joint compound on lugs and RTN input terminal plates.
 - e. Use a $\frac{3}{8}$ -16, grade 2 bolts, washers, and nuts (all provided) to secure the first pair of RTN cabling to the RTN input bus terminal plate. (See Figure 15.)
- If you use two lugs, remember to attach the lugs to opposite faces of the terminal plate. **DON'T STACK LUGS** on one side of the terminal plate.

- Always route cables in a neat, orderly manner to ensure that the cables exert no pulling or twisting forces on the input and return terminal plates. **DON'T ALLOW TERMINAL PLATES** to support the weight of or to restrain the cable.

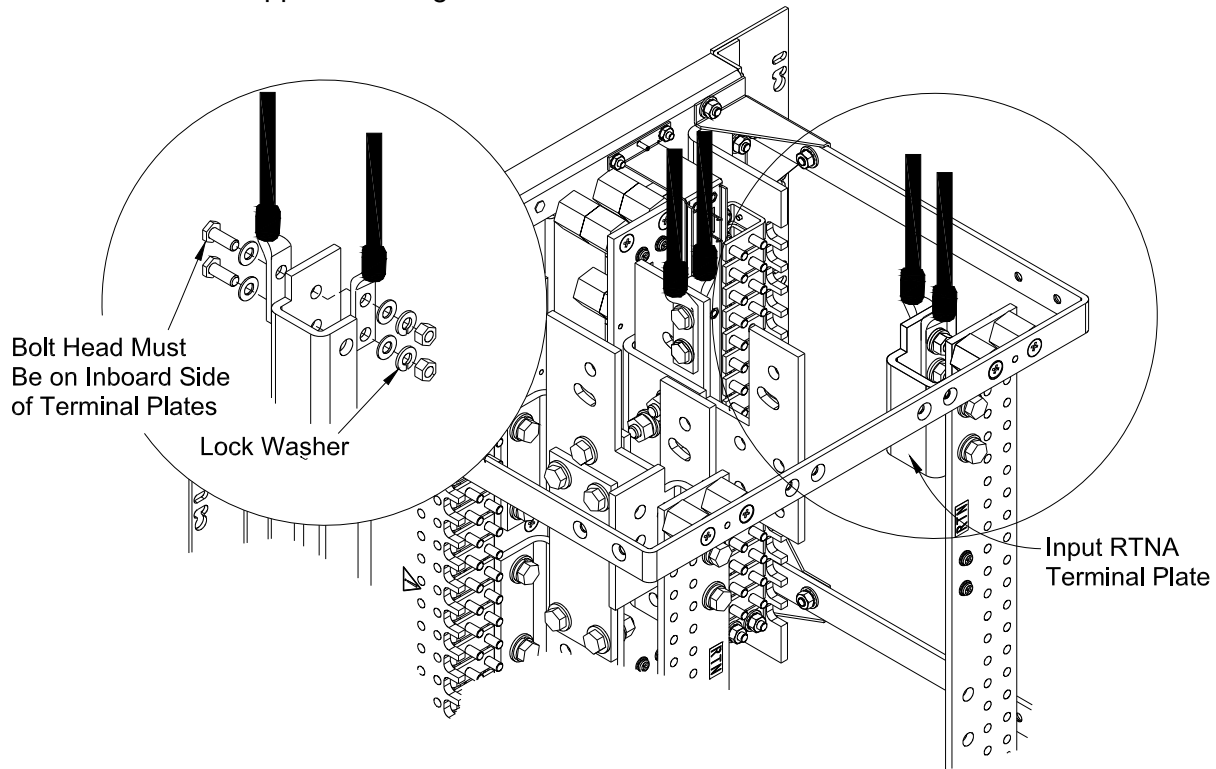


Figure 15 - Securing the Input RTN

2.4.3 Install Intrabay & Interbay Cabling

The input -48 and RTN plates contain mounting holes for bus extensions to other panels in the same bay. Telect has busing and cabling kits for all types of input extensions.

2.4.4 Install Alarm Cabling

You can connect external indicators (monitors) to the BDFB / BDCBB alarm board. The external indicators can be wired to accept either a normally open or closed circuit when the **VDC PWR** or **FUSE ALM** LEDs or other optional alarms are activated.

To connect power- and fuse-alarm circuits to the BDFB / BDCBB, proceed as follows:

1. See Figure 16 and then remove four Phillips screws (screws with cross-recessed heads) securing the alarm panel.
2. Carefully pull off and turn the alarm panel cover around.
3. Strip off ¼ in. of insulation on the end of a pair of 18-24 AWG alarm wires for each external alarm circuit desired.

4. Select a common (**C**) contact and either a normally closed (**NC**) or normally open (**NO**) contact for each alarm desired:
 - For a **C** and **NC** pair, expect continuity ($0\ \Omega$) during normal operation and an open circuit ($\infty\ \Omega$) for an alarm condition such as an open breaker or a power failure.
 - For **C** and **NO** pair, expect an open circuit ($\infty\ \Omega$) during normal operation and continuity ($0\ \Omega$) for an alarm condition such as an open breaker or a power failure.

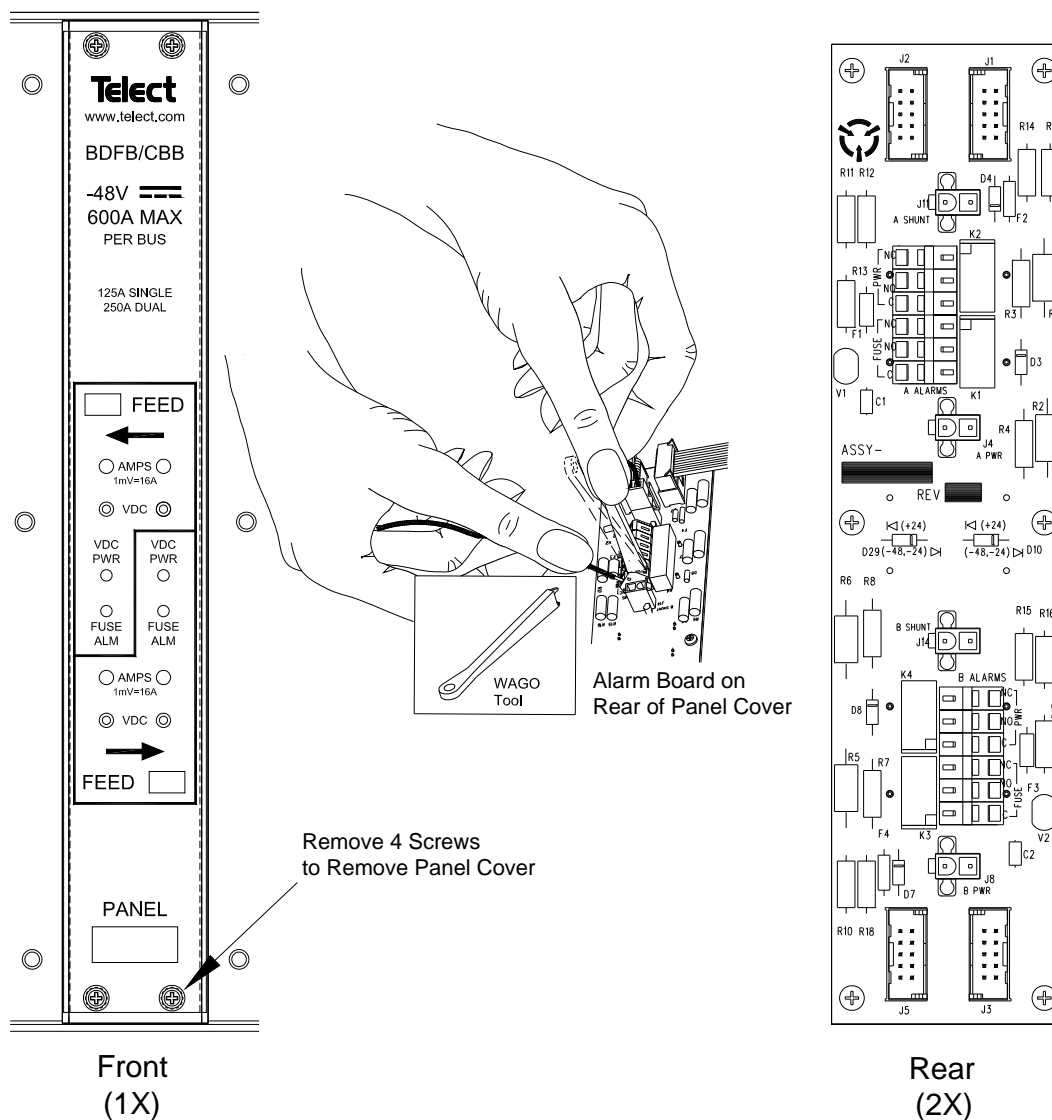


Figure 16 - Installing Alarm Cabling

5. For each contact, insert the WAGO tool (supplied) into the connector to release the contact's cage-clamp jaws. Insert the wire and then pull out tool to cinch.
6. When finished with Feed A and B alarm wiring, re-secure the alarm panel cover.

2.4.5 Test Inputs & Alarms Without Breakers

1. Make sure BDFB / BDCBB contains no circuit breakers.
2. Turn on Feed A input power, then
 - Verify that the **VDC PWR** lamp turns green.
 - Verify that the **FUSE ALM** lamp is not lit.
3. Use a DVM with standard .080-in. test probes to verify power and polarity at the panel's **VDC** test points for Feed A:
 - Connect panel RED (-48Vdc) to meter RED (voltage).
 - Connect panel BLK (RTN) to meter BLK (common).
4. Use an ohmmeter *at alarm monitor* to verify alarm conditions.

With Feed A power OK and without any installed circuit breakers, expect either continuity ($0\ \Omega$) between **C** and **NC** poles and/or an open circuit ($\infty\ \Omega$) between **C** and **NO**.
5. Repeat the procedure for Feed B.

2.4.6 Install Output Cabling

ALERT

ALERT! Feeds A and B may be powered. Use the voltmeter to verify, and then proceed accordingly.

Remember to finish all input cabling (including all intrabay and interbay input cabling) before proceeding with output cabling in that bay.

Proceed as follows to cable panel outputs:

1. Use a UL-approved crimping tool to attach UL-approved, dual-hole compression lugs onto each pair of copper output and return cables (up to #2 AWG), as required by NEC. Insulate the lug barrels as required.

The size of the cables is determined by the size of the breaker intended for that cable.

2. Clean the terminals and lugs with a nonabrasive, nonmetallic pad.

3. Plan to route and restrain the cables along the outside of the cable management brackets, as shown in Figure 17.

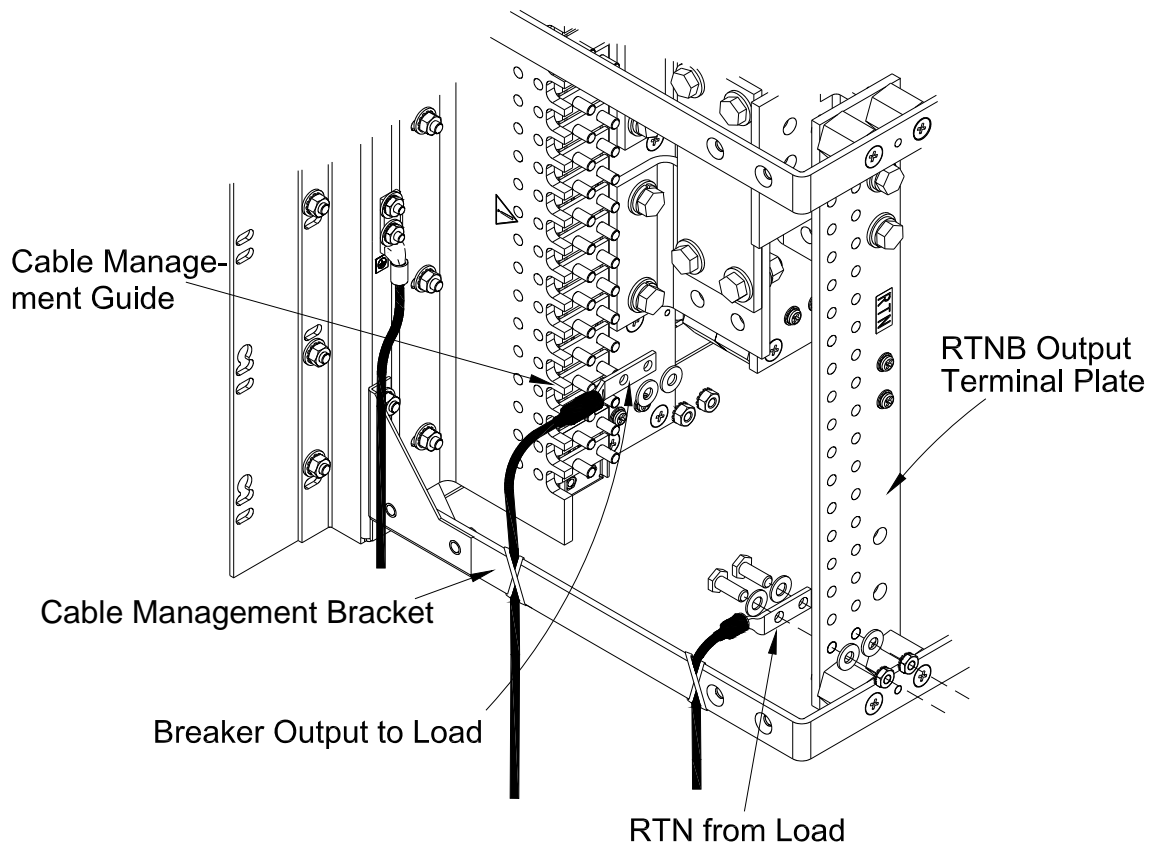


Figure 17 - Routing and Restraining Cables

4. For a breaker output —
 - a. Remove the washers and KEPS nuts from the appropriate output studs.
 - b. Lightly coat anti-oxidant electrical joint compound on both lug and studs.
 - c. Fit the lug onto studs, secure the lug with washers and KEPS nuts, and then tighten to 6 ft-lb (8.13 N•m).
5. For an output return —
 - a. Lightly coat anti-oxidant electrical joint compound on both lug and return terminal plates.
 - b. Use $\frac{1}{4}$ -20, grade 2 bolts, washers, and KEPS nuts to secure the lug.
 - c. Tighten nuts and bolts to 6 ft-lb (8.13 N•m).
6. Arrange cables neatly.

Unless directed otherwise by operating company guidelines, it is best to use lacing cord to bundle and secure cables.
7. If applicable, re-install the optional rear cover.

8. Install breakers as detailed in Section “2.5 Circuit Breaker Installation” on page 26.
9. Test the panel using the procedure in Chapter 3, *Output Testing*.

2.5 Circuit Breaker Installation

CAUTION

CAUTION! Do not install breakers with breakers switched on. Doing so may damage breakers or panel.

Local electrical and operating company guidelines recommend that the individual load not exceed 80% of circuit breaker capacity (for example, 50A breaker x .80 = 40A max. load). Total continuous load for all outputs must not exceed 600A per bus.

CAUTION

CAUTION! Use of non-approved circuit breakers may cause severe damage to the alarm panel and/or digital metering panel. **USE OF NON-APPROVED CIRCUIT BREAKERS WILL VOID WARRANTY.**

1. Remove the blank faceplate at the intended breaker position.

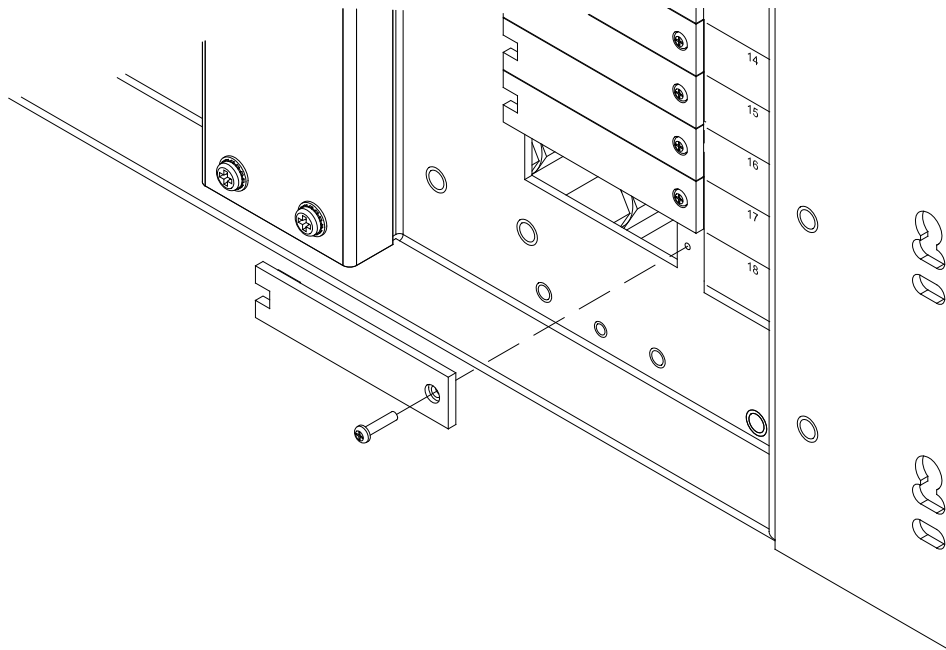


Figure 18 - Removing the Blank Plate

2. Before installing a breaker, screw the face plate to the breaker, as shown in Figure 19.

NOTE: Breakers are installed in the panel so that the OFF position is toward the outboard side of the panel. In other words, install breakers so that the LOAD side is toward the outside edge of the panel; that is, LOAD should be on the right on Side B, as shown below, and on the left on Side A.

3. Make sure the breaker is off and then install it firmly into the panel. Use the screw to secure the breaker to the panel.

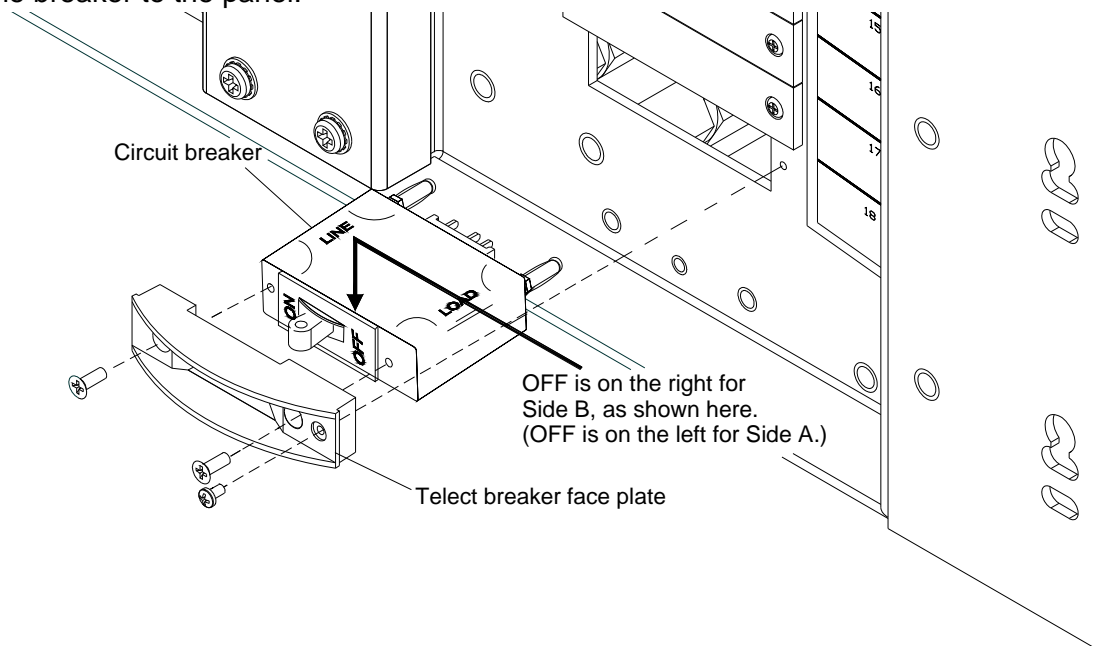


Figure 19 - Connecting the Faceplate to the Breaker

4. Label output on the designation label next to the circuit breaker.
5. Proceed to test the BDFB / BDCBB, as outlined in the next section, *Output Testing*, before turning on circuit breakers for the first time.

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Chapter 3: Output Testing

! ALERT

ALERT! Only qualified personnel may install and maintain this product. Verify that all connections meet requirements specified in local electric codes or operating company guidelines before supplying power. Protect this equipment with a fuse or breaker sufficient to interrupt power levels specified in Chapter 1 of this manual.

1. For initial startup, make sure all BDFB / BDCBB circuit breakers and *all inputs at output loads* are disabled (disconnected or off).
2. With Feed A and B to panel turned on,
 - Verify that **VDC PWR** lamps turn green.
 - Verify that **FUSE ALM** lamps turn red.

NOTE: The **FUSE ALM** lamp will light if any circuit breaker on the corresponding bus is off.

3. Use a DVM with standard .080-in. test probes to re-verify power at the panel's **VDC** test points for Feed A:
 - Connect panel RED (-48Vdc) to meter RED (voltage).
 - Connect panel BLK (RTN) to meter BLK (common).
4. Use an ohmmeter *at the alarm monitor* to verify alarm conditions for *each feed*.

With input feed OK, but with any circuit breaker OFF, expect the following feed conditions:

- For the power alarm circuit, expect either continuity ($0\ \Omega$) between **C** and **NC** poles or an open circuit ($\infty\ \Omega$) between **C** and **NO**.
 - For the circuit breaker (fuse) alarm circuit, expect either an open circuit ($\infty\ \Omega$) between **C** and **NC** poles or continuity ($0\ \Omega$) between **C** and **NO**.
5. Make sure power is disabled *at the first load* and then turn on the corresponding BDFB / BDCBB circuit breaker.
 6. Use a DVM to test power and polarity *at input terminals of load*.
 7. Turn on the corresponding load and verify proper load operation.
 8. Repeat Steps 5 through 7 for all other breakers and corresponding loads.
- After the last breaker is turned on, the **FUSE ALM** lamp must go off.

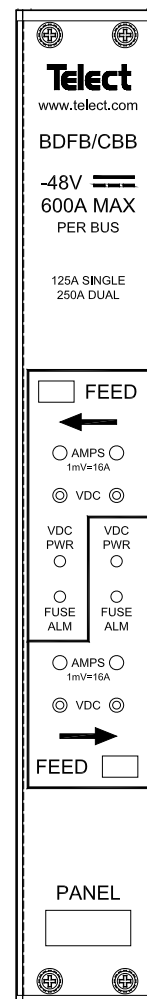


Figure 20 - Alarm Panel

9. Use an ohmmeter *at the alarm monitor* to verify the powered-up circuit breaker (fuse) alarm condition.

With all circuit breakers ON and powered up, expect either continuity ($0\ \Omega$) between **C** and **NC** poles or an open circuit ($\infty\ \Omega$) between **C** and **NO**.

Chapter 4: Service



CAUTION

CAUTION! Only qualified technicians may install and maintain this product.

4.1 Owner Maintenance

If you encounter technical difficulties, please use the online request form at www.telect.com under Support\Technical Support or call Telect directly at 888.821.4856.

4.2 In-Warranty Service

Contact Telect's quality call center at 877-471-7245 or e-mail us at quality@telect.com. Telect will ship a new replacement product, along with a return shipping label and authorization information. When you receive your replacement product, pack up the defective product and return it to Telect using the return label, box and any additional information provided.

4.3 Out-Of-Warranty Service

Follow the In-Warranty directions above. Telect charges a processing fee for out-of-warranty service, and you must submit a Purchase Order along with a Return Material Authorization (RMA) before returning equipment. The processing fee guarantees a repair estimate and is credited against actual material and labor costs. Call Telect's quality call center at 877-471-7245 for more information.

4.4 Repacking for Shipment

1. Tag the equipment showing owner's name, address, and telephone number, together with a detailed description of the problem.
2. Use the original shipping container if possible. If you do not have it, package the equipment in a way to prevent shipping damage. Include the RMA inside the container and legibly print the RMA number on the outside of the package, near the shipping address.
3. Insure the package.

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Chapter 5: Accessories

The following table lists optional and replacement items for the Dual 600A BDFB / BDCBB (007-0001-2600). Contact Telect for price and availability. For input and output wiring and circuit breaker selection, please refer to *Wire Sizing & Label Convention Guide* (Telect Part No. 117995) included with your panel.

Item	Description	Part Number
Single-Pole Circuit Breakers (Magnetic, 65Vdc, Long Delay, Slim Line) ^a	1A	090-0052-1001
	2A	090-0052-1002
	3A	090-0052-1003
	5A	090-0052-1005
	10A	090-0052-1010
	15A	090-0052-1015
	20A	090-0052-1020
	30A	090-0052-1030
	40A	090-0052-1040
	50A	090-0052-1050
	60A	090-0052-1060
	70A	090-0052-1070
	80A	090-0052-1080
	90A	090-0052-1090
	100A	090-0052-1100
	Face plate/cover	090-0001-0021
Double-Pole Breaker (Mag- netic, 65Vdc, Long Delay, Slim Line) ^a	125A long delay with adapter ^b	090-0052-2125
	150A long delay with adapter ^b	090-0052-2150
	Face plate/cover	090-0001-0022
No Circuit Breaker	Blank plate kit	090-0001-0020
Shunt Kits	400A	007-0006-0400
	600A	007-0006-0600
	800A	007-0006-0800
	1000A	007-0006-1000

Item	Description	Part Number
Alarm/Metering Panel	Standard alarm with test points	007-0003-0001
	Dual digital display with std alarm & test points	007-0003-0002
ETSI Bracket Adapter Kit	Use instead of EIA/WECO mounting brackets	007-0000-0100
Front Cover, Blank	Covers 17.5-in. space in a 19-in. rack	007-0000-0102
	Covers 17.5-in. space in a 23-in. rack	007-0000-0103
Rear Safety Cover	Clear heat-resistant wrap	007-0000-0010
Designation Label	For vertical array of 18 CB positions	122845
Internal Bus Kits	Links BATT input buses of 2 BDFB/BDCBBs ^c	007-0002-0010
	Links return buses of two BDFB / BDCBBs ^c	007-0002-0020
	Expander for input battery bus ^d	007-0002-0012
	Expander for return bus ^d	007-0002-0022
External Return Bus Kits	For 12 or 15 in. cable rack ^e : ¾ in. c/c holes	007-0000-0115 ^f
	1 in. c/c holes	007-0000-0215 ^g
	1 in. & ¾ in. c/c holes	007-0000-0315 ^h
	For 20 in. cable rack ^e : ¾ in. c/c holes	007-0000-0120 ⁱ
	1 in. c/c holes	007-0000-0220 ^j
	1 in. & ¾ in. c/c holes	007-0000-0320 ^k
	Brackets for 1.5 in.-deep cable rack ^l	007-0000-0121
	Brackets for a 2 in.-deep cable rack ^l	007-0000-0125
	Expansion, Common ^m	007-0000-0122
	Expansion, Insulated ^m	007-0000-0123
Lug Fastener Kits	For 36, dual-lug load returns ⁿ	007-0000-0225
	For 10, dual-lug load returns (spares) ⁿ	007-0000-0231
	For 4, dual-lug, input battery or returns ^o	007-0000-0230
	For 2, internal Input bus expanders ^p	007-0000-0232
Relay Racks, 7-ft Seismic	EIA with unequal flanges, white	723-0707-2130-001
	WECO with unequal flanges, white	723-0701-2130-001
	End Panel, white	071-3000-0002
Enclosed Cabinet	Standard Zone 4 for up to 4 BDFB / BDCBBs	Contact Telect.

- a. Contact Telect for alternate circuit breakers, such as mid-trip or short delay. SEE CAUTION THAT FOLLOWS.
- b. The adapter bridges adjacent single-pole CB slots for use with double-pole breakers.
- c. Each expansion kit contains parts and fasteners to link adjacent (above/below) BDFB / BDCBBs in a rack. Three kits are required to link a maximum of four, 10RU BDFB / BDCBBs per rack.
- d. Bracket and fasteners used to expand from four 750/777.7MCM input positions to six to accommodate up to four multiple 600A BDFB / BDCBBs in a 2400A rack.
- e. Each kit contains parts and fasteners to install an overhead return bus to the plant's 12 in., 15 in., or 20 in.-wide ladder rack system. Each copper plate handles multiple dual-lug connections for a total 600A continuous load at 800A max. load. External return buses accommodate dual lugs with $\frac{3}{4}$ in. and/or 1 in. center-to-center (c/c) hole spacings. Brackets for 1.5 in.- versus 2.0 in.-deep cable racks are ordered separately.
- f. 32 sets of dual holes. Lugs can be bolted to both sides for a total of 64 lug connections.
- g. 16 sets of dual holes. Lugs can be bolted to both sides for a total of 32 lug connections.
- h. 12 sets of dual holes with 1 in. center spacing; 22 sets of dual holes with $\frac{3}{4}$ in. center spacing. (Not all hole sets can be used when accommodating both types of lugs.) Lugs can be bolted to both sides.
- i. 38 sets of dual holes. Lugs can be bolted to both sides for a total of 76 lug connections.
- j. 20 sets of dual holes. Lugs can be bolted to both sides for a total of 40 lug connections.
- k. 16 sets of dual holes with 1 in. center spacing; 20 sets of dual holes with $\frac{3}{4}$ in. center spacing. (Not all hole sets can be used when accommodating both types of lugs.) Lugs can be bolted to both sides.
- l. Pair of brackets plus fasteners accommodate either 12 in., 15 in., or 20 in.-wide ladder racks.
- m. Allows for additional external return buses: either electrically interconnected or isolated. Requires a lug fastener kit, ordered separately.
- n. Set includes $\frac{1}{4}$ - 20 bolts, washers, and nuts for each connection.
- o. Set includes $\frac{3}{8}$ - 16 bolts, washers, and nuts for each connection.
- p. Set includes $\frac{3}{8}$ - 16 bolts, washers, and nuts.



CAUTION

CAUTION! Use of non-approved circuit breakers may cause severe damage to the alarm panel and/or digital metering panel. USE OF NON-APPROVED CIRCUIT BREAKERS WILL VOID WARRANTY.

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