

# 4x100A Demarcation Breaker Panel With Alarms

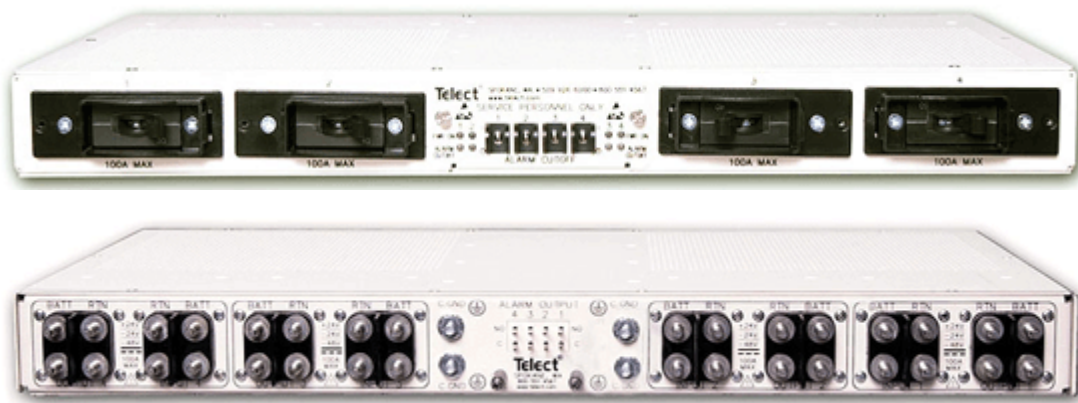
Model 009-7000-0104

## Installation Guide

### 1.1 Overview

Telect's 4 x 100A Demarcation Breaker Panel With Alarms provides breaker protection at equipment interface. The low profile panel includes four breaker positions with blank face plates, a replaceable alarm card containing power/alarm cut-off LEDs, visual and audio indicator relays, and rear-access terminals and wirewrap alarm switch contacts. Each breaker has separate BATT/RTN inputs and outputs.

Hardware is included for either flush or extended mounting in a 19" or 23" relay rack. Visit our website ([www.telect.com](http://www.telect.com)) for ordering accessories and replaceable parts: breakers (up to 100A, each), lugs, ETSI mounting brackets, and more.



**Figure 1 - Model 009-7000-0104**  
(Listed by UL for US and Canada, File No. E139903; NEBS3 Compliant)

### 1.2 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](mailto: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 [telect.com](http://telect.com) website, or email inquiries to [getinfo@Telect.com](mailto:getinfo@Telect.com) and click on the "Support" tab, or phone us at 800-551-4567 (domestic only) or 509-926-6000.



## CAUTION

**CAUTION!** Install this equipment in locations only accessible to qualified persons.

### 1.3 Specifications

Alarms:	Specification:
Alarm Relay Contacts	0.6A @ 60 Vdc
Alarm Card Power Rating	1W
Alarm Wire Size	Solid: #26 to #22 AWG
Physical*/Environment:	Specification:
Operating Temp Range	–10°C (14°F) to 55°C (131°F)
Weight With Packaging	~10 lb (~4½ kg)
Inputs/Outputs:	Specification:
Max. Breaker (each)	100A.
Max. Output Load (each)	80A continuous
Max. Total Load Rating	320A continuous
Voltage Range	+20 to +28 Vdc –40 to –60 Vdc
BATT & RTN Wire Size	#8 to #2 AWG
Ground Wire Size	#10 to #2 AWG (depends on input fuse)
Terminal Studs (Input, Output, and Earth Ground)	M5 dual studs on $\frac{5}{8}$ " centers
Power Dissipation	17W per channel

## 1.4 Installation

**NOTE:** Panel brackets are provided for flush or extended mounting in an EIA or WECCO rack.

*Procedure steps:*

1. If necessary, remove the three screws and reposition/realign the brackets on the sides of the breaker panel, as shown in Figure 2.
2. Locate an unused rack position and mount panel using 4 screws and star washers provided, as shown in Figure 3. (It's best to mount the panel as high as possible on the rack.) Tighten the screws to 35 in.-lb (4.29 N•m).

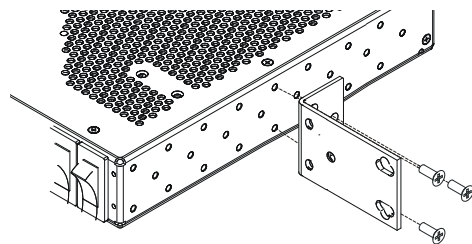


Figure 2 - Bracket Orientation

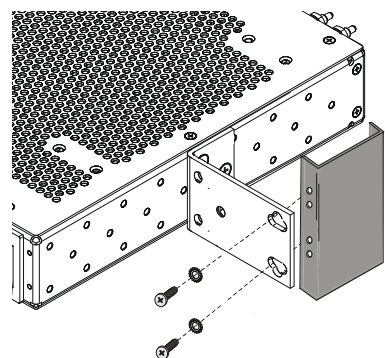


Figure 3 - Rack Mounting

### **WARNING**

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

3. Use a UL/NRTL-approved crimping tool to attach a UL/NRTL-approved, 2-hole compression lug (fit M5 dual studs on  $\frac{5}{8}$ " centers) onto a #10 to #2 AWG ground wire. (Size of ground wire depends on size of input BATT wires.)
4. Attach opposite end of ground wire to relay rack, per local practices.

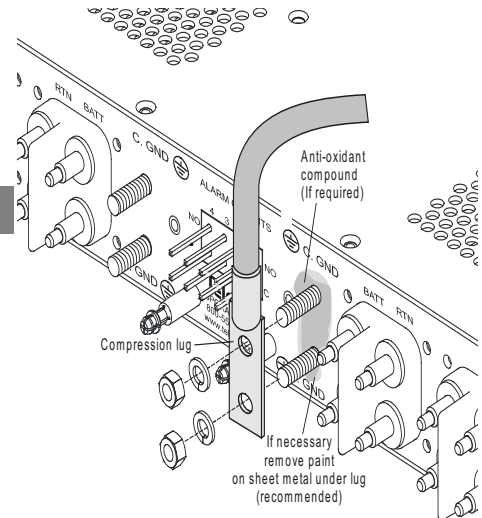
5. If required, lightly coat antioxidant on lug, grounding terminal, and contacting surface. Connect lug to terminal using KEPS nut from terminal, as shown in Figure 4. Tighten the nut to 20 in.-lb (2.27 N-m).

## **WARNING**

**WARNING!** Before connecting input power cables, make sure input power to panel is turned off.

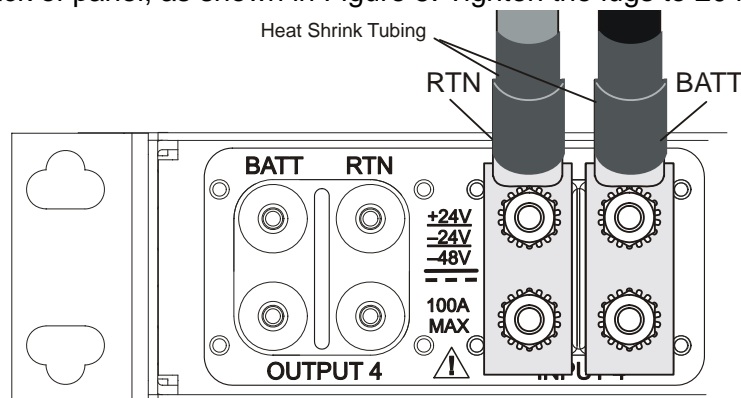
**NOTE:** Input and output wire size for this panel must be rated for the corresponding breaker/fuse size. The input wiring to this panel may be a greater size to accommodate a voltage drop from the primary power source.

**NOTE:** Always follow operating company guidelines when connecting input wiring to the primary power source.



**Figure 4 - Ground Lug Connection**

6. Make sure the input power is off.
7. For input wiring — wiring used as inputs to this demarcation panel — crimp straight or angled, 2-hole compression lugs (fit M5 dual studs on 5/8" centers) onto #8 to #2 copper wires. Insulate lug barrels with UL94 V-0 rated heat shrink tubing.
8. Remove the plastic covers from all battery (**BATT**) and return (**RTN**) input terminals.
9. Clean the terminals with a nonabrasive, nonmetallic pad.
10. If required, lightly coat antioxidant on lugs and input terminals, and then connect lugs to input terminals on back of panel, as shown in Figure 5. Tighten the lugs to 20 in.-lb (2.27 N-m).



**Figure 5 - Input Lug Connections**

11. Before installing breakers and output wiring, turn power on to verify input power and indicators:

- Verify input voltage and polarity.
- Whenever power is supplied, expect corresponding PWR ON LED to light. See Figure 6.)

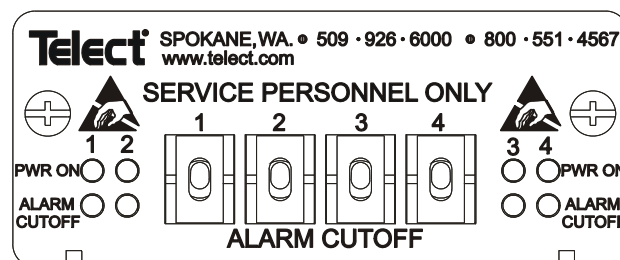


Figure 6 - LEDs & ALARM CUTOFF Switches on Front Panel

12. Reattach plastic covers over *input* terminals having attached lugs.

The plastic covers are pressed over the terminal studs. If using angled lugs, break out the scored lip of the corresponding cover with pliers, as shown in Figure 7. Remove any sharp edges around the breakout.

13. For output wiring, repeat Steps 7 through 10 for **BATT** and **RTN** *outputs* (crimp output wires to lugs, clean output terminals, and attach lugs to output terminals). Heat shrink lug barrels. See Figure 8.

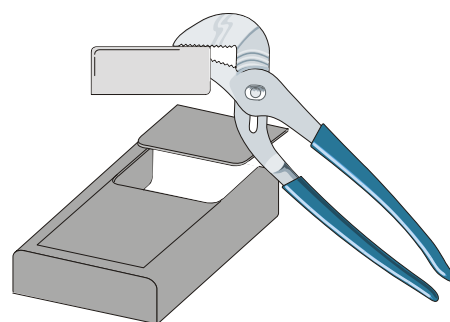


Figure 7 - Removing Break-Away on Lug Cover

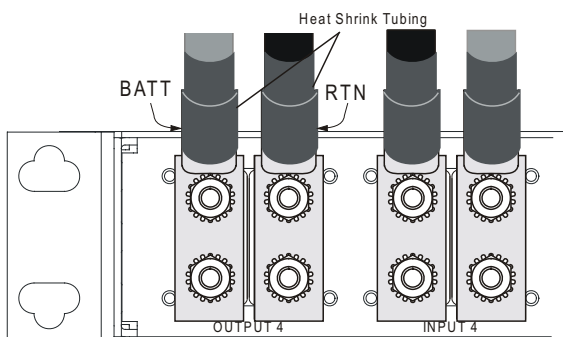


Figure 8 - Output Lug Connections

14. Attach plastic covers over **all** *output* terminals.

15. Remove blank face plates at intended breaker positions.

16. Before installing breakers, screw the face plates to the breakers using two of the three screws provided with each face plate, as shown in Figure 9.

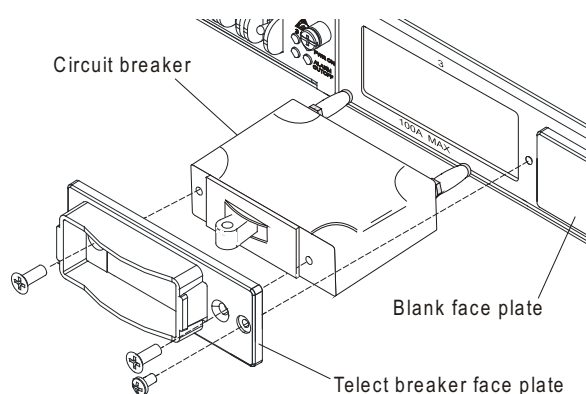


Figure 9 - Installing Circuit Breakers



## CAUTION

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

Telect recommends that the individual circuit load not exceed 80% of circuit breaker capacity (for example, 100A breaker x .80 = 80A max. load).

17. With input power on, *but* with the breaker off (or open), firmly install each breaker in the panel. Use the screw to secure each breaker plate to the panel.
18. Test the Alarm Card.

- a. Set all **ALARM CUTOFF** switches on the front to the **SERVICE** (down) position. With breakers off, check all pairs of alarm terminals. (See Figure 10.)

- Expect an open circuit ( $\infty\Omega$ ) between Terminals C and NO. ALARM CUTOFF LEDs should be unlit.

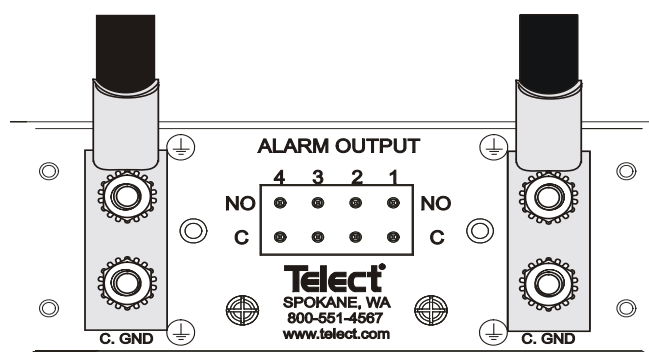


Figure 10 - Alarm Relay Terminals on the Rear of the Panel

- b. Set all **ALARM CUTOFF** switches on the front of the demarcation panel to the **NORMAL** (up) position:

- Expect an open circuit ( $\infty\Omega$ ) between Terminals C and NO for any position either without a breaker or with a breaker that is ON.
- Expect continuity ( $0\Omega$ ) between C and NO for all positions containing a breaker that is OFF (alarm condition). Also, the corresponding ALARM CUTOFF LED (front panel) should be OFF.

**NOTE:** Under normal conditions, that is, with the power and circuit breakers on and with the **ALARM CUTOFF** in the **NORMAL (up)** or **SERVICE (down)** position, expect an open circuit

( $\infty\Omega$ ) between Terminals C and NO on the rear of the demarcation panel. Also, the corresponding ALARM CUTOFF LEDs should be OFF.

If a breaker trips with its corresponding **ALARM CUTOFF** switch in the **NORMAL (up)** position, expect continuity ( $0\Omega$ ) between Terminals C and NO. Thereafter, if the corresponding **ALARM CUTOFF** is switched to **SERVICE (down)**, expect the corresponding ALARM CUTOFF LED to light with an open circuit ( $\infty\Omega$ ) again obtained between corresponding Terminals C and NO.

19. Wire-wrap alarm pins with solid #26 to #22 AWG.
20. Make sure the output devices — devices fed from the outputs of this demarcation panel — are off.
21. Switch on each circuit breaker, one at a time, and check the voltage and polarity at the output terminals and equipment ends. Verify the normal operating conditions outlined in the preceding Note.

*This procedure is complete.*

## 1.5 Schematic (1 of 4 Circuits) & Dimensions

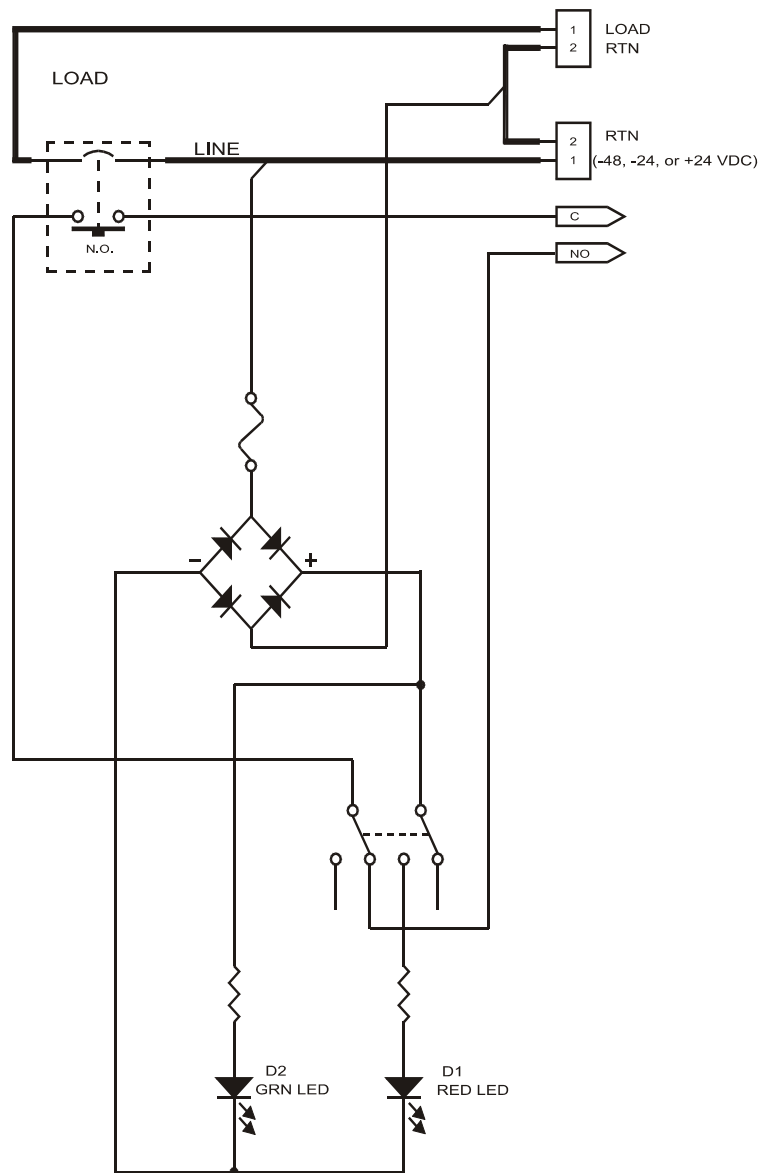
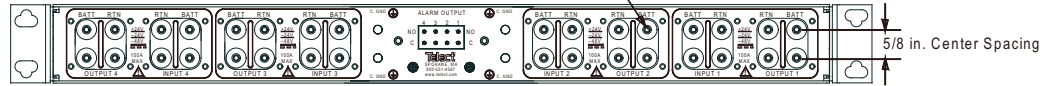


Figure 11 - Schematic 1



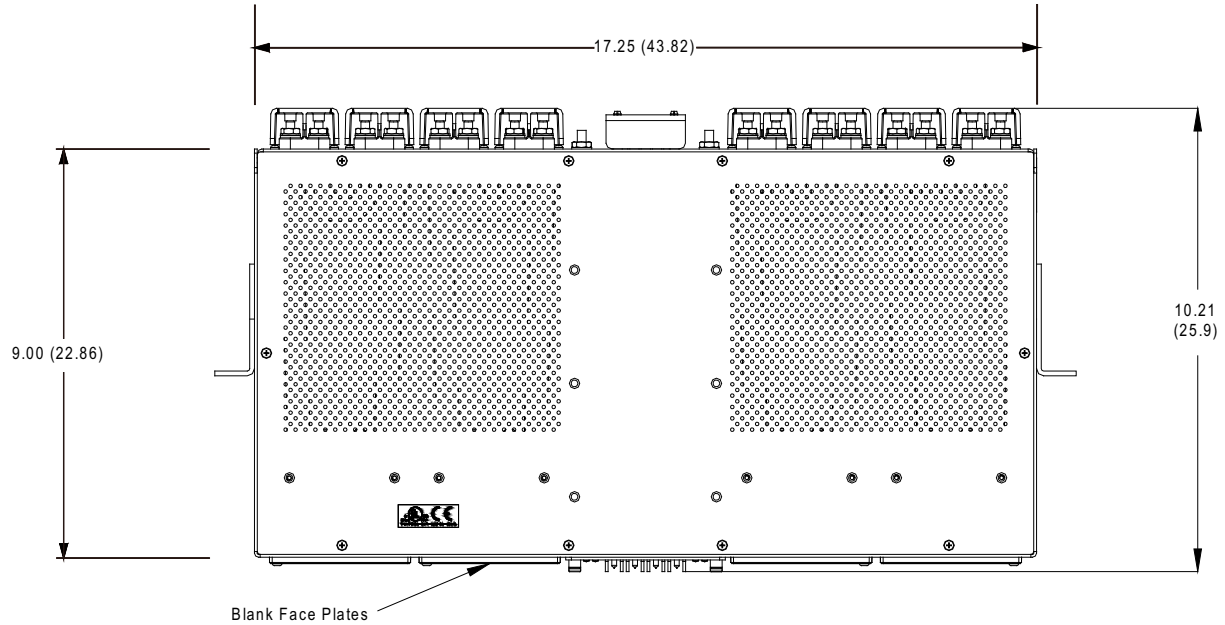
- Notes: 1. Dimensions are in inches (centimeters)  
2. Circuit breakers are not supplied.

M5 Ground & Input Posts  
With 5/8 in. Center Spacing

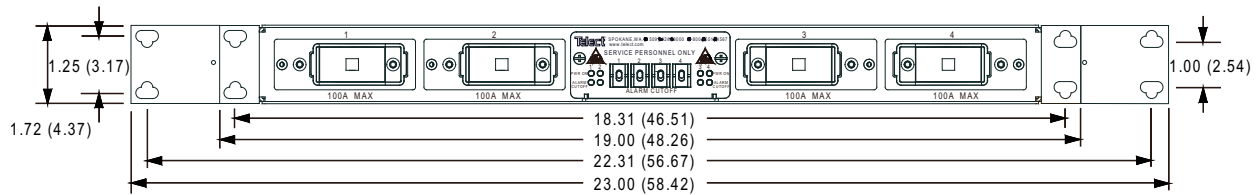


### REAR VIEW

ROTATED. SHOWN WITHOUT TERMINAL COVERS



### TOP VIEW



### FRONT VIEW

(SHOWN WITH CIRCUIT BREAKERS)

Figure 12 - Dimensions

## 1.6 Accessories—Long Delay Breakers

Amperage	Telect Part Number
10A	090-0052-0010
20 A	090-0052-0020
30 A	090-0052-0030
40 A	090-0052-0040
50 A	090-0052-0050
60 A	090-0052-0060
70 A	090-0052-0070
80 A	090-0052-0080
90 A	090-0052-0090
100 A	090-0052-0100

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