

Low-Current 20/20 GMT Series Fuse Panels

Models 06004-01 & 06004-11 Installation Guide

Telect's 1RU Traditional Low-Current GMT Series Fuse Panels provide protected secondary -24 Vdc to -48 Vdc power distribution to telecommunications equipment at the bay level. Fuse panels are available for GMT outputs up to 10A per position in dual-circuit panel configurations having 20 GMT fuse positions per circuit.

- Model 06004-01 is the standard panel containing separate Side A and Side B GMT fuse failure alarms and corresponding LEDs. Model 06004-01 standard features include —
 - ◇ Dual-circuit, 20A input bus for Side A and 20A for Side B
 - ◇ Minimal rack space: one, 1.75-in. EIA or 2-in. WECO rack unit (1RU) for rear access connections
 - ◇ 20 GMT outputs per side with each side protected by a Type ABC 20A ceramic input fuse
 - ◇ Dummy GMT fuses provided for all fuse holders.
 - ◇ Two sets of Form C relay contacts per side for reliable fail alarm connections
 - ◇ Side A and B alarms can be wired for separate or common alarming¹
 - ◇ 19-in. or 23-in. rack mounting, with mounting brackets provided



Front



Rear

- Model 06004-11 adds separate power failure auxiliary alarms for Sides A and B¹ along with a load-sharing fail-safe circuit. If power fails on one bus the other picks up the loads on the failed bus.

Both models are UL recognized under UL File E199668.

1. All basic and auxiliary alarms can be wired for separate or common alarming.

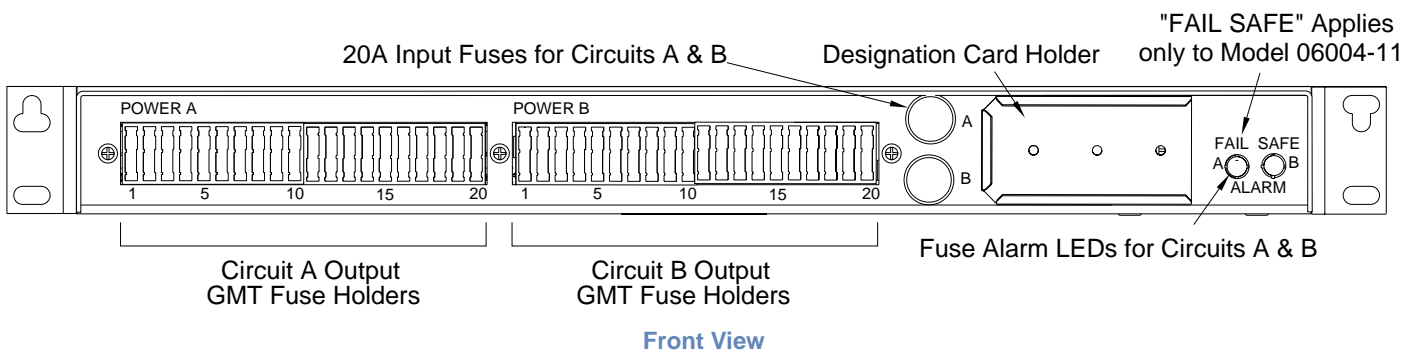
Physical Specifications	
Dimensions (nominal without bracket)*	Width: 17 in. (432 mm) Height: 1.75 in. (44.4 mm) Depth: 9.25 in. (235.0 mm)
Weight	8.5 lb (~3.8 kg)
Ground terminals	Screws: #10-32 Phillips** panhead Torque: 20 in.-lb (~2.26 N•m), max. Wire: Same size as input terminals Ring Lug: Burndy T1010, 12 AWG, no insulation; AMP 35771, 12-10 AWG, no insulation
Material††	Cold-rolled steel, powder-coat telcom grey

* See Page 10 for complete dimensioning.
** Screws with cross-recessed heads
†† Custom color/finish available.

Mechanical Specifications	
Input terminals	Type: Screw-tight, wire-clamping Wire: 14 to 6 AWG, copper wire Torque: 16 in.-lb (1.80 N•m), max.
Output terminals	Type: Screw-tight, wire-clamping Wire: 22 to 14, copper wire Torque: 4.5 in.-lb (0.51 N•m), max.
Alarm terminals— Wire Wrap	.045 in. square wire-wrap pins on .200 in. centers. Use 18 to 22 AWG copper
Environmental Specifications	
Temperature range, ambient	-17°C to 49°C (0°F to 120°F)
Humidity	0% to 90% and noncondensing
Reliability	
MTBF	200,000 hr

Electrical Specifications

Operating voltages, nominal	-24 Vdc to -48 Vdc
Current capacity 06004-01	20A per bus (40A total for both buses), max. with 20A ceramic input fuse (Type ABC)
06004-11	15A per bus (30A total for both buses), max. with 20A ceramic input fuse (Type ABC)
Fuse capacity	20 (ea side)
Maximum PDU input interruption device rating	25A per bus
Maximum output interruption device rating	10A GMT fuse
Maximum continuous output load rating	7A for a 10A fuse
Alarm contact relay	2A @ 30 Vdc
Panel heat dissipation per 20A bus	3.9W (13.3 Btu/hr) @ 0% load
Percentage of full load heat dissipation at nominal voltage	less than 1% of total load wattage

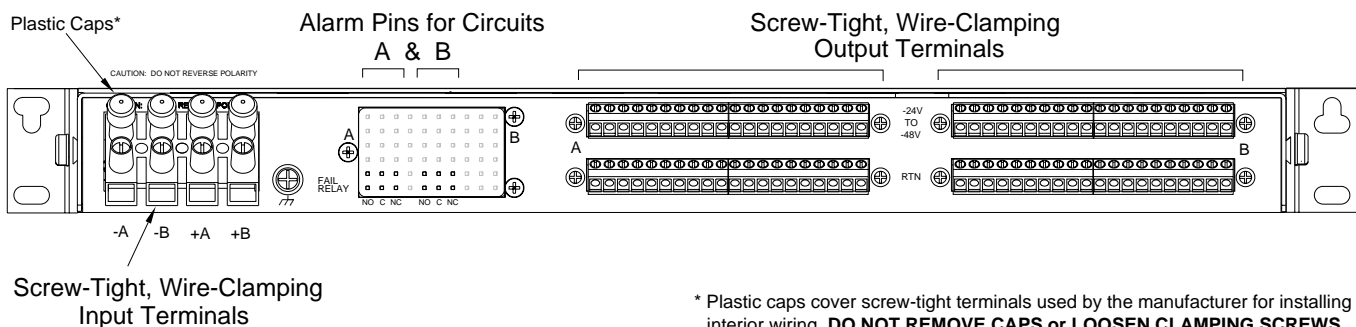


GMT output fuses are available in capacities ranging from 0.18A to 10A. GMT splash covers are optional for maximum safety when fuses blow. [Visit our website (www.telect.com) or see Page 9 for ordering GMT fuses.] The panel is delivered with “dummy” fuses in all positions.

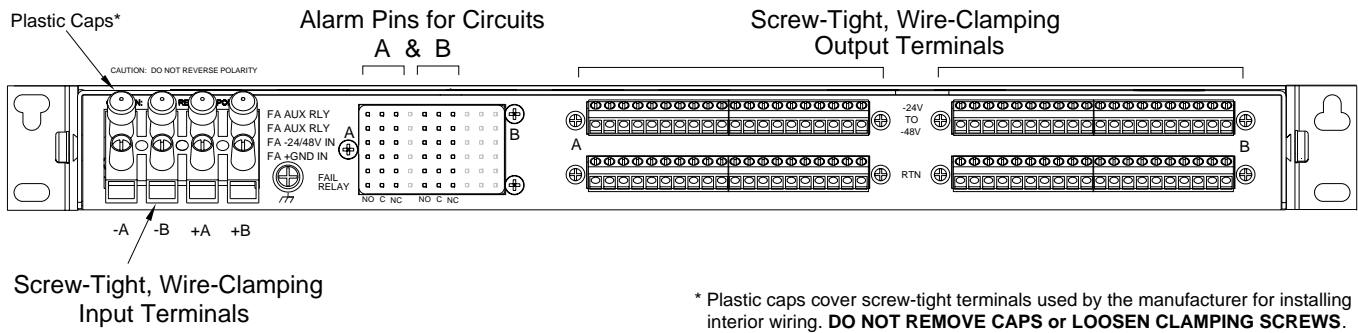
The standard front panel includes a tri-color fuse alarm LED for each circuit (ALARM A & ALARM B):

- The ALARM LEDs are green when all installed input and output fuses are operational.
- The ALARM LED is red when any output fuse blows.
- The ALARM LED is orange when either of the input fuses blows.

The back contains input and output terminal connections (NEG connections at top; POS RTN connections below), chassis ground connections, and wire-wrap pins for external alarm hookups.



* Plastic caps cover screw-tight terminals used by the manufacturer for installing interior wiring. **DO NOT REMOVE CAPS or LOOSEN CLAMPING SCREWS.**



Models 06004-11 (Rear View)

Model 06004-11 includes a fail-safe circuit. Schottky diodes are cross-connected at the input to the power distribution circuits. When both power supplies are energized, power is balanced between the two supplies by the diodes. If one of the power supplies loses its power or is shut down, the other supply shares its power with both outputs (A and B) through the Schottky diodes. The positive battery return circuits for A and B are common since both circuits must operate from either the A or B power source. The fail-safe feature reduces the A and B inputs to 15A maximum for *each* bus (total 30A per panel).

NOTE

For the Fail Safe load sharing to function properly, the capacity of each of the user-supplied external feeder fuses or breakers must be greater than the total load of the panels A and B outputs combined. For example, if the panel's total Load A = 10A and Load B = 10A, then the feeder fuse for Side A and Side B must each be at least 20A.

INSTALLATION

! ALERT

ALERT! This product must be installed within a restricted access location where access is through the use of a tool, lock and key, or other means of security, and is controlled by the authority responsible for the location. This product must be installed and maintained only by qualified personnel.

ALERT! Verify 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 under "Electrical Specifications".

ALERT! Each panel is tested at the factory. Telect recommends, however, that you perform the testing outlined in the following installation procedure to ensure that no damage has occurred during shipping and handling. Both Sides A and B input circuits, as applicable, need to be tested.

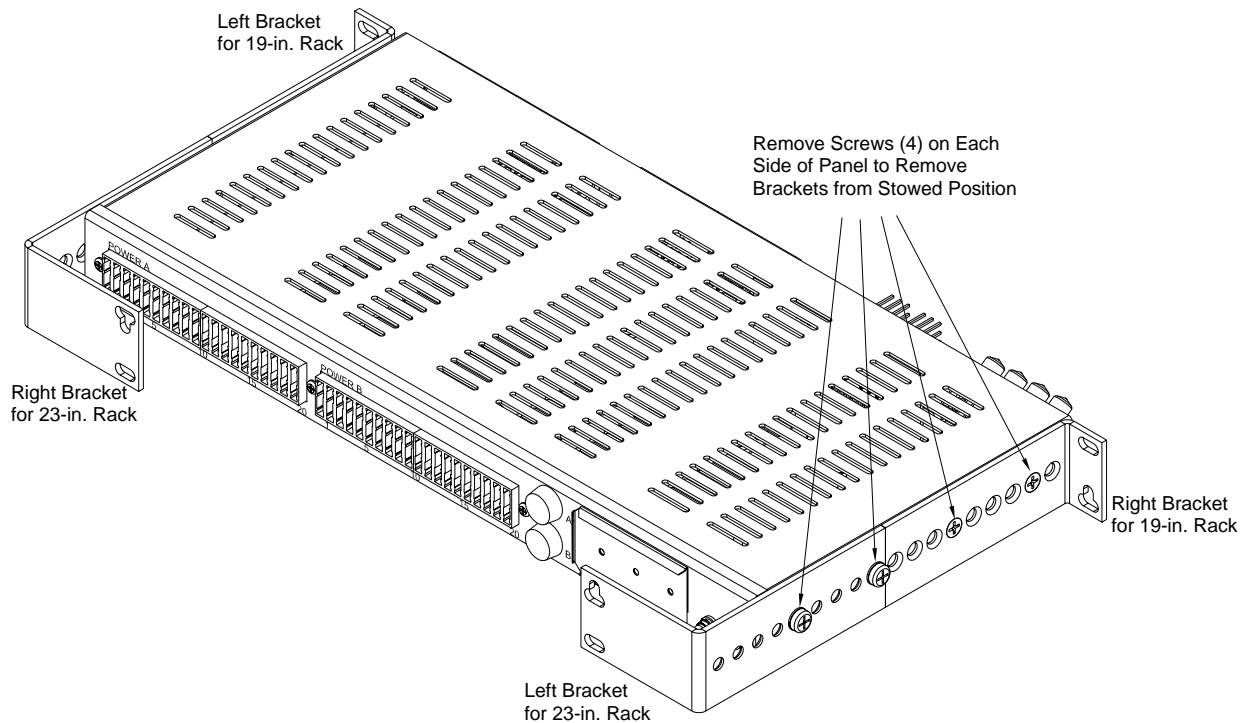
Please read these instructions carefully before beginning installation. If you need assistance call Technical Support at 888-821-4856 (domestic calls), or 509-921-6161 (Option 2), or eMAIL us at getinfo@telect.com

1. 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.

NOTES

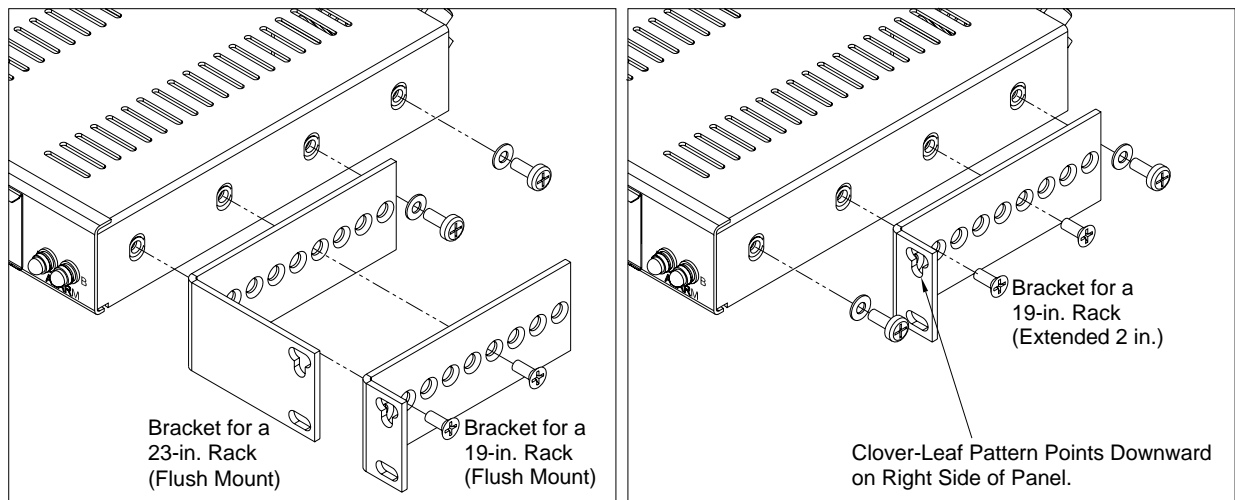
- Telect is not liable for shipping damage. If damaged, notify the carrier and call Telect's Customer Service Department at 1-800-551-4567 (domestic only) or 1-509-926-6000 for further recourse.
- Brackets are provided for either flush or extended [increments of 0.5 in. (12.7 mm)] mounting in a 19 in. or 23 in. rack with either EIA or WECO spacing. For shipping purposes, both pairs of brackets are affixed to the sides of the panel.

2. Remove brackets, shown in the following illustration, from sides of panel.



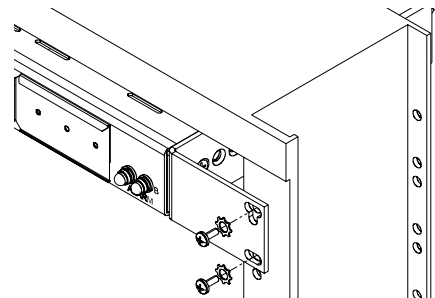
Panel With Mounting Brackets in Stowed Position for Shipping

3. Select the proper pair of brackets and discard the other two.
4. Mount brackets to sides of panel, as shown in the following examples. Tighten screws to about 29 in.-lb (~3.3 N•m). Panel can be mounted so that panel's face is flush or extended in 0.5-in. (12.7 mm) increments from rack. (The clover-leaf pattern on the face of the bracket points downward on the right side of the panel and upward on the left.)



Bracket Installation (Examples)

5. Locate an unused rack position and mount panel using four, 12-24 thread-cutting screws and lockwashers provided, as shown on the right. Tighten screws to 35 in.-lb (4.29 N•m).
6. Before connecting any conductor, use a multimeter to measure the resistance between the input terminal of each side (+A and -A for Side A; +B and -B for Side B) at the rear corner of the panel. Expect 500Ω or more for both Side A and Side B.





WARNING

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

WARNUNG! Bei unsachgemäßer Erdung besteht Gefahr für das Installationspersonal und das Gerät!

¡AVISO! La conexión incorrecta a tierra puede ser peligrosa tanto para los instaladores como para el equipo.

AVERTISSEMENT! Si vous ne reliez pas correctement cet équipement à la terre, son utilisation présente des dangers pour la personne qui l'installe ainsi que pour l'équipement.



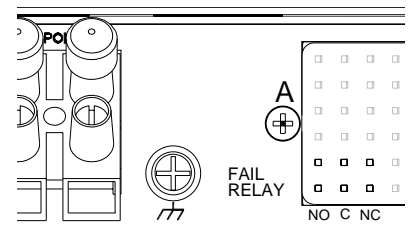
ALERT

ALERT! 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.

7. **For ground wiring**, use a listed (approved) crimping tool to attach a listed (approved), single-hole compression lug suitable for a #10 (~5 mm) stud onto a suitable ground wire.

Ground wire should be same gauge as input wiring. Input wire size depends solely on input interruption device at the primary distribution unit (PDU).

8. If necessary, use a coarse, nonmetallic cleaning pad to clean lug and stud.
9. Telect recommends that you lightly coat anti-oxidant on lug, grounding screw, and surrounding contacting surface. Connect lug to rear panel using #10 ground provided, shown on the right. Tighten screws to 20 in.-lb (~2.26 N•m).



WARNING

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

WARNUNG! Vor Anschluss der Eingangsstromkabel ist sicherzustellen, dass der Eingangsstrom ausgeschaltet ist.

¡AVISO! Antes de conectar los cables de entrada de la alimentación, compruebe que la alimentación de entrada al panel está cortada.

AVERTISSEMENT! Avant de connecter les câbles d'entrée d'alimentation, assurez-vous que l'alimentation électrique est coupée au panneau.

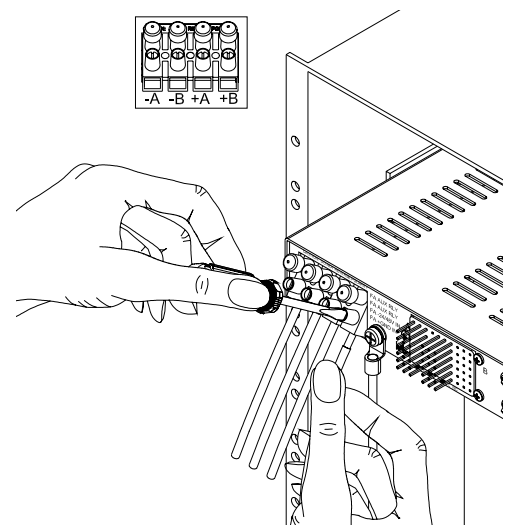
10. Make sure input power is off.
11. **For input wiring** — wiring used as inputs to this distribution panel — strip approximately $\frac{3}{8}$ in. (~10 mm) of insulation from the end of suitable input conductors.

Input conductor (14 to 6 AWG) must match or exceed the rating of the fuse or breaker at the PDU. (Stranded wires should be tinned.)

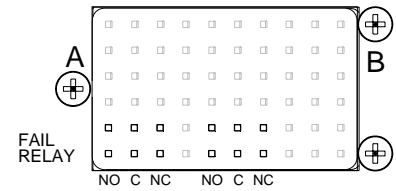
12. Lightly coat anti-oxidant on bare conductors insert the conductors at the bottom of the screw-tight terminals, as shown on the right. Tighten screws to 16 in.-lb (1.80 N•m).

Important

-24 Vdc and -48 Vdc always goes to -A and -B and +24 Vdc always goes to +A and +B, depending on CO or base-station power. RTN always goes to the other terminal. For Model 06004-11 with fail-safe circuitry, make sure that RTN is common to both Side A and B.



13. Make sure power is off [open breaker, dummy fuse, or vacant fuse holder at power distribution unit (PDU)] before connecting this panel's cables to PDU.
14. Make sure that only dummy GMT fuses are install in *this* panel or that the GMT fuse holders are vacant.
15. Enable fuse or breaker at PDU (25A max. for Model 06004-01; 35A max. for Model 06004-11 which contains a fail-safe circuit) to turn on Feed A to Side A of panel.
16. Check voltage and polarity *at input connectors of panel*. Also, check that —
 - The **A** LED on front of panel turns on (green).
 - The **B** LED must remain red.



- If the **A** LED doesn't turn green, recheck polarity at input connectors. (Reversing input connections will not harm the panel.) If the input power leads were reversed, the fuse fail relay will fail to energize causing the normally open contacts to remain closed and normally closed contacts to remain open. If necessary, check across the FAIL RELAY alarm pins located on the rear of the panel, and shown above.
17. On the rear of the panel, with **A** LED lit (normal operation) — but with **B** LED off (failure operation) — test the Side-A FAIL RELAY pins:
 - Expect continuity (0Ω) between Terminals **C** and **NC**.
 - Expect an open circuit ($\infty\Omega$) between Terminals **C** and **NO**.

Conversely, when testing the Side-B pins —

 - Expect an open circuit ($\infty\Omega$) between Terminals **C** and **NC**.
 - Expect continuity (0Ω) between Terminals **C** and **NO**.
 18. Repeat Steps 15 to 17 for Feed B and observe that the **B** LED turns green. Across all FAIL RELAY alarm pins —
 - Expect continuity (0Ω) between Terminals **C** and **NC**.
 - Expect an open circuit ($\infty\Omega$) between Terminals **C** and **NO**.
 19. For output wiring, strip off ¼ in. (~7 mm) of insulation.

Like the input terminals, the output terminals are screw-tight, wire-clamping. The output terminals will accommodate 14 AWG to 6 AWG conductors. Like the output terminals, stranded wires for outputs should be tinned.

Remember: Output conductors must be rated at or above the amperage rating of the GMT fuse. For example, use no smaller than #16 AWG output wiring for 10A output fuses. Do not exceed 8A continuous load for a 10A fuse.

! ALERT

ALERT! GMT fuses have a small inherent electrical resistance resulting in a small inherent power loss. For this reason, the GMT fuse manufacturer recommends that the load for GMT fuses up to and including 7.5A not exceed 80% of the fuse rating and that the load for 10A GMT fuses not exceed 70% of the fuse rating. (For example, 10A fuse x .70 = 7A max. load). Total load for all GMT outputs on each side must not exceed 20A for a panel *without* a fail-safe circuit, or 15A for a panel *with* a fail-safe circuit.

20. Telect recommends that you lightly coat anti-oxidant on bare wires before connecting to output terminals. (NEC specifies only one conductor and load for each output terminal.) Tighten screws to 4.5 in.-lb (0.51 N•m).
21. Connect other end of output wires to *load*.
22. Record circuits on designation card provided, as specified by operating company procedures. (The front side of the card is shown on the right.)

The designation card has entries for Outputs 1-10 on the front and 11-20 on the rear. Use the left half of each side for Side A outputs and the right half for Side B outputs.
23. Make sure inputs at *loads are disabled* by removing all power cards or all input fuses at load equipment. (Always follow recommended operating company guidelines when disabling load equipment.)

INPUT FUSE			INPUT FUSE		
FUSE	AMP	CIRCUIT	FUSE	AMP	CIRCUIT
1			1		
2			2		
3			3		
4			4		
5			5		
INPUT FUSE			INPUT FUSE		
FUSE	AMP	CIRCUIT	FUSE	AMP	CIRCUIT
6			6		
7			7		
8			8		
9			9		
10			10		

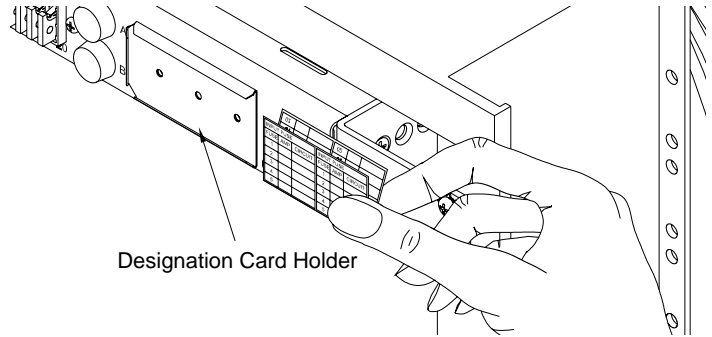


WARNING

WARNING! Use only UL-listed or UL-recognized component secondary protection devices.

24. Insert the proper sizes of GMT fuses in designated fuse holders using the designation card to identify circuits. Check voltage and polarity *at input of loads*.
25. After all designated GMT fuses have been installed, check that the **A** and **B** LEDs are still green. If an output fuse blows, the corresponding **A** or **B** LED will turn red; if an *input* fuse blows, the corresponding **A** or **B** LED will be orange or amber. Again, test FAIL RELAY alarm pins on rear of panel. As before —
 - Expect continuity (0Ω) between Terminals **C** and **NC**.
 - Expect an open circuit ($\infty\Omega$) between Terminals **C** and **NO**.
26. If available, replace one of the output fuses with a blown fuse and check that the **A** or **B** LED changes to red. Check the FAIL ALARM pins again:
 - Expect an open circuit ($\infty\Omega$) between Terminals **C** and **NC**.
 - Expect continuity (0Ω) between Terminals **C** and **NO**.

When finished, re-install the operable fuse.
27. Do the same with one of the input fuses. Notice that the **A** or **B** LED changes to amber. The FAIL RELAY alarm pins will indicate a failure condition.
28. If desired, wire-wrap remote external audio/visual alarm indicator wires (solid copper wires, #22 to #18 AWG) to the alarm terminals. See “Alarm Terminal Wiring,” in the next subsection.
29. One by one, re-enable load equipment and verify proper operation.
30. Fold designation card on the score line and slip into holder on front of panel, as shown on the right.



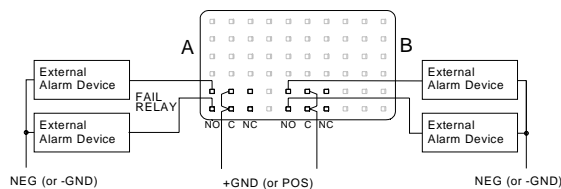
ALARM WIRING

Model 06004-01 has a standard alarm relay (FAIL RELAY) for each feed — one for Side A and one for Side B. Models 06004-11 contains the standard alarm relay plus an auxiliary relay (AUX RELAY) that can be triggered externally. All relays have two sets of Form C dry contacts for wiring to audible and visual alarm indicators.

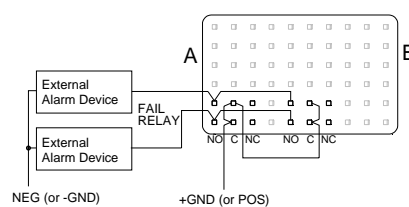
Audible and/or visual failure indicators can be wired to the alarm pins in several ways.

— Standard Alarms

When an input or output fuse blows the relay is de-energized and the normally open contacts close and the normally closed contacts open to indicate the failure.



a. Separate Alarms for Side A & Side B

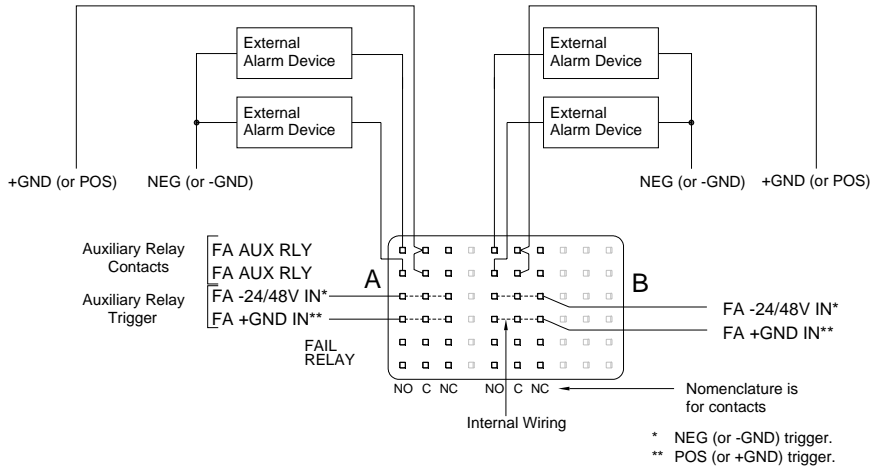


b. Combined Alarms for Side A & Side B

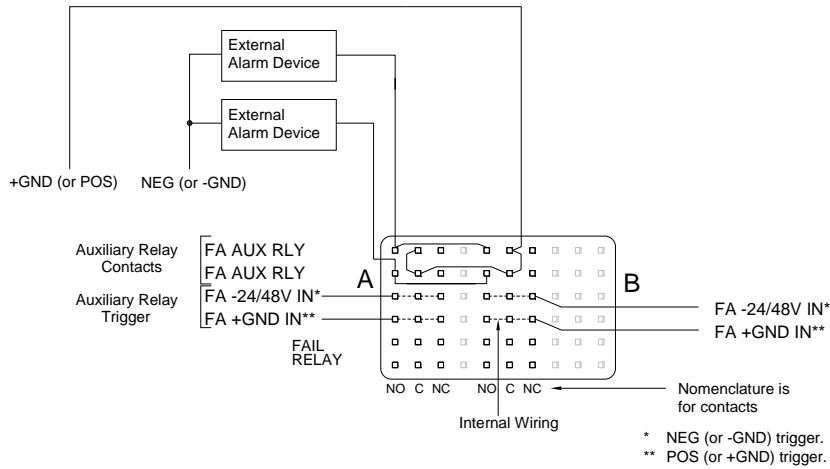
Standard Alarm Wiring

Auxiliary Alarms

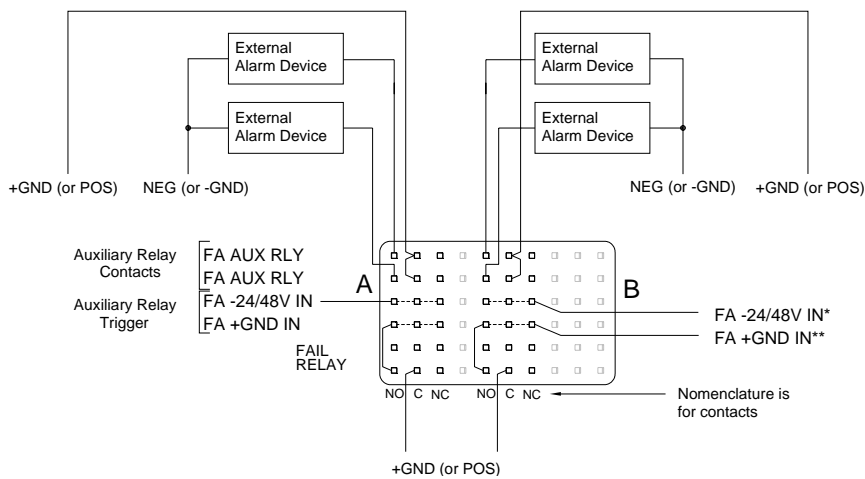
Auxiliary alarms are triggered from either an external CO or site source or by the standard alarm relay. Like the standard relay, when triggered, the auxiliary relay is de-energized causing the normally open contacts to close and the normally closed contacts to open.



a. Separate Alarms for Side A & Side B



b. Combined Alarms for Side A & Side B



c. Using the Standard Alarm to Trigger Auxiliary Alarms When a Fuse Blows

Auxiliary Alarm Wiring

PARTS & ACCESSORIES

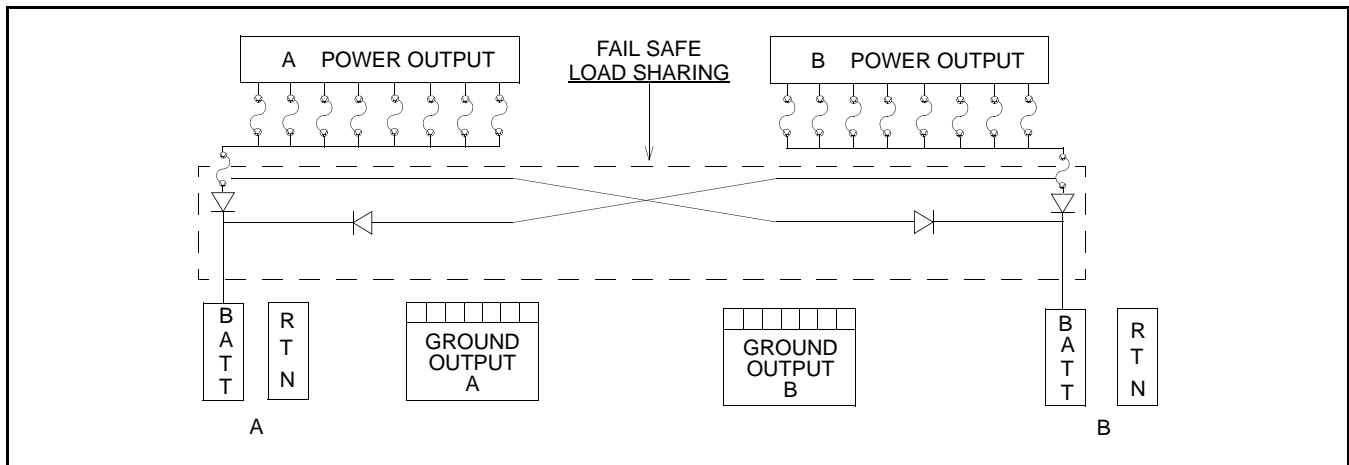
GMT FUSES¹

GMT Fuse	Part Numbers GMT Fuse	GMT Fuse	Part Numbers GMT Fuse
.18A Yellow (YEL)	130781	2.5A White/Orange (WHT/ORN)	130783
¼A Violet (VIO)	100151	3A Blue (BLU)	004012
½A Red (RED)	004001	3.5A White/Blue (WHT/BLU)	130782
¾A Brown (BRN)	004008	4A White/Brown (WHT/BRN)	004013
1A Gray (GRY)	100991	5A Green (GRN)	004014
1 ¹ / ₃ A White (WHT)	004006	7½A Black/White (BLK/WHT)	004010
1½A White/Yellow (WHT/YEL)	004011	10A Red/White (RED/WHT)	004015
2A Orange (ORN)	004002		

NOTES

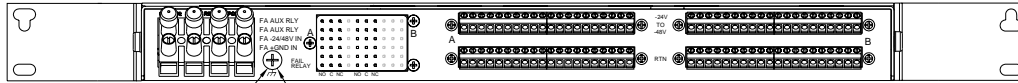
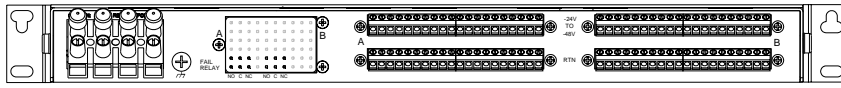
- For service and warranty, see our telect.com website, or eMAIL inquires to getinfo@telect.com, or phone us at 800-551-4567 (domestic only) or 509-926-8915.
- Low-Current GMT Fuse Panels do not require special preventive maintenance.

BLOCK DIAGRAMS



1. For dummy fuses order 101557. For GMT safety (splash/splatter) covers order 116915.

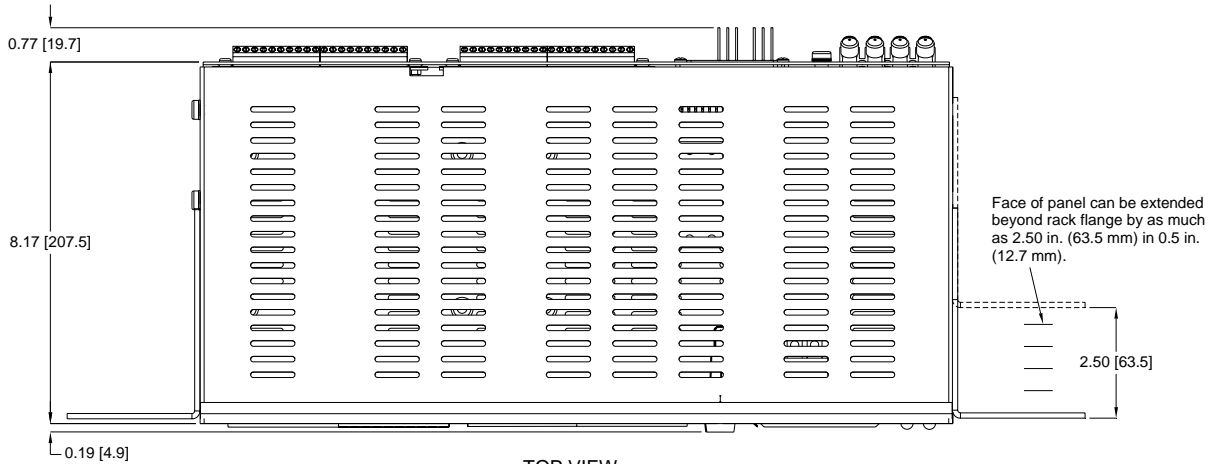
DRAWING



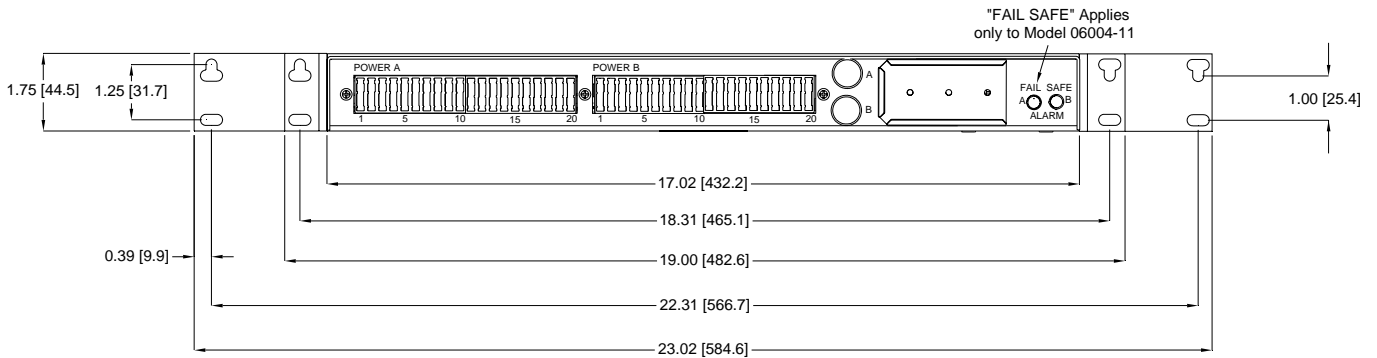
#10-32 Panhead Screw — R0.21 [R5.4]

Min. length of lug tongue is 0.43 in. (10.8 mm)

REAR VIEWS (ROTATED)



TOP VIEW



FRONT VIEW

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U.S. Conformity Assessment Body Certificate of Conformity

No. 174-0923-1-0



Upon assessment of Technical Construction File 174-0923-1-0-TCF
it has been determined that the

Hendry Telephone Products Power Distribution and Fan Panels

conform to the protection requirements set out in article 4 of
EMC Directive 89/336/EEC

as per EN 55022 :94 with A1 :95 & A2 :97 (class A),
EN 61000-3-2 :95, EN 61000-3-3 :95, EN 300 386 V1.2.1 :00-03,
and ETS 300 132-2;

and in accordance with the Agreement on Mutual Recognition between the United States of America and the European Community, Sectoral Annex for EMC, this U.S. Conformity Assessment Body hereby certifies attestations of compliance to the EMC requirements so demonstrated.


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