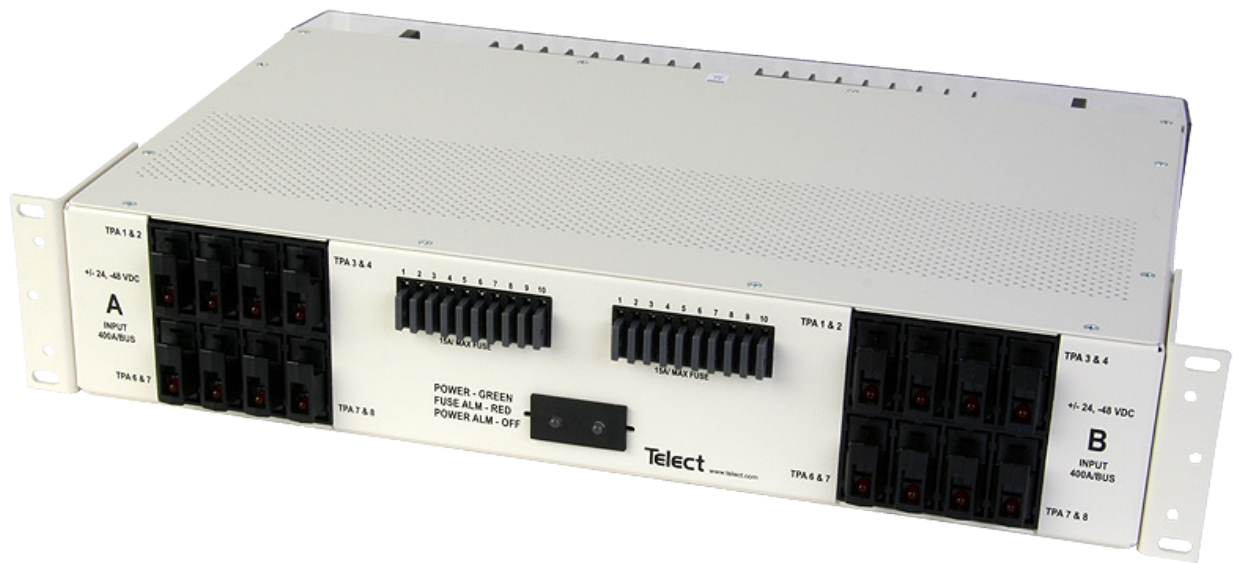


Dual-Feed 350A 8/8-TPA & 10/10 GMT Fuse Alarm Panel

Power :: 009-8005-0810

User Manual



Applies to : 009-8005-0810

Dual-Feed 350A 8/8-TPA & 10/10 GMT Fuse Alarm Panel

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1.1 Overview

Telect's dual-feed 350A fuse panel with alarms provides power protection for data and communications equipment ranging from ¼A to 50A. The white panel includes 16 TPA output fuse holders (8 per side) and 20 GMT holders (10 per side).

Sides A and B are electrically independent except for the replaceable alarm card, which contains power status LEDs for each side and power-fail and fuse-alarm relays. Relay contacts are Form C for external visual and audio indicators.

Hardware is included for flush or 5-in. extended mounting in a 23-in. or 19-in., EIA or WECO rack. (The 19-in. rack must have an equipment mounting aperture of at least 17.5 in.) Visit our website for ordering Telect accessories: fuses (3A-50A TPA & ¼ A-15A GMT), ETSI bracket kit, spare alarm card, and more.

Model 009-8005-0810 is UL Listed (E139903), NEBS compliant, and RoHS compliant.

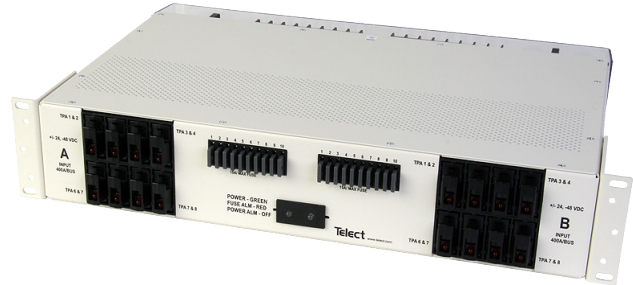


Figure 1 - Model 009-8005-0810

Inputs:	Specifications:
Nominal Voltage	±24Vdc -48Vdc
Max Input Load Rating	350A per side
Nominal Power Loss at Full Load	90W per side @ 16,800W full load per side (350Ax48V)
Percentage of Full Power Dissipation atNominal Voltage	less than 1%
Max. Input Interrupt Device	450A
Input Terminal Studs (With Nuts, Flat Washers, & Spring Washers) for Dual-Hole Compression Lugs	Two pairs of 3/8 - 16 studs on 1 in. centers (max. lug width of 1.625 in. [41.27 mm]). Torque nut (using 9/16 in. or 15 mm wrench) to 140 in.-lb (~15½ N•m).
Input Wire Size	#1 AWG to 600MCM
Short Circuit Withstand	5000A

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TPA Outputs:		Specifications:
Max. TPA Output Fuse (ea.)		50A
Max. TPA Output Load (ea.) - continuous		40A
Max. Total TPA Output Load		280A per side
TPA Output Terminal Studs (With Nuts and Washers) for Single-Hole Compression Lugs		32, #10 - 32 studs (max. lug width of 0.44 in. [11.2 mm]). Torque the nut (using 3/8 in. or 10 mm wrench) to 20 in.-lb (~2.3 N•m)
TPA Output Wire Size		#18 AWG to #6 AWG, depending on output fuse rating
GMT Outputs:		Specifications:
Max. GMT Output Fuse (ea.)		15A
Max. GMT Output Load (ea.) - continuous		10.5 A
Max. Total GMT Output Load		80A per side
GMT Output Terminals for Compression Lugs		40, removable, #6 panhead screws [max. lug width of 0.315 in. [8.00 mm]]. Torque to 6.3 in.lb (~0.7 N•m).
GMT Output Wire Size		#22 AWG to #12 AWG, depending on output fuse rating
Grounding:		Specifications:
Earth GND Terminal Bolts (With Washers) for Dual-Hole Compression Lug		Two pair of 1/4 - 20 threaded holes on 3/4 in. centers. Torque bolts (using 7/16 in. or 12 mm wrench) to 50 in.-lb (5.5 N•m)
Ground Wire Size		#2 AWG (min.) for a 500A input interrupt device
Alarms:		Specifications:
Alarm Relay Contacts		2A @ 30Vdc 0.6A @ 60Vdc
Max. Alarm Card Power Rating		@24V: 103 mA (2.47W) @48V: 128 mA (6.14W)
Alarm Wire Size		#24 AWG, typical (#26 to #20 AWG)
Alarm Terminals		Wire Wrap
Dimensions:		Specifications:
Nominal, Without Brackets:*	Width: 17.4 in. (442 mm) Height: 3.5 in. (90 mm) Depth: 12 in. (310 mm)	
* See Page 14 for exact dimensions		
Weight:		Specifications:
Weight, Without Packaging		~20 lb (~9 kg)
Weight, Shipping		~22 lb (~10 kg)
Environment:		Specifications:
Operating Temperature		-10°C (14°F) to 55°C (131°F)

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1.2 Installation

1.2.1 Important Installation Guidelines

- **Elevated Operating Ambient** - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (T_{ma}) specified by the manufacturer.
- **Reduced Air Flow** - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
- **Mechanical Loading** - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- **Circuit Overloading** - Consideration should be given to the connection of the equipment on the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- **Reliable Earthing** - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).
- **Disconnect Device** - A readily disconnect device shall be incorporated in the building installation wiring.

1.2.2 Inspection

Please read and understand all instructions before starting installation. If you have questions, contact Telect Technical Support at support@telect.com or call 1.509.926.6000.

When you receive the equipment, carefully unpack it and compare it to the packaging list. Please report any defective or missing parts to Telect Quality at support@telect.com or call 1.509.926.6000.

Telect is not liable for transit damaged. If the product is damaged, please report it to the carrier and contact Telect.

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1.2.3 Installation Procedure

! 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 Section “1.2 Specifications” on page 1.

Install this product in locations accessible only by qualified personnel.

Panel brackets provide flush or 5-in. extended EIA or WECO mounting in a 23-in. or 19-in. rack with an equipment aperture of at least 17.4 in. (442 mm) between the rack’s flanges.

1. If necessary, remove the three screws and reposition the brackets on the sides of the distribution panel, as shown in Figure 2.
2. Locate an unused rack position and mount panel using the four sets of screws and washers provided, as shown in Figure 3. (It’s best to mount the panel as high as possible on the rack.)
3. Tighten the screws to 35 in.-lb (4.29 N•m).
4. Loosen (you need not remove) the two screws securing the rear terminal cover on the back of the panel.
5. Remove the cover

! WARNING

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

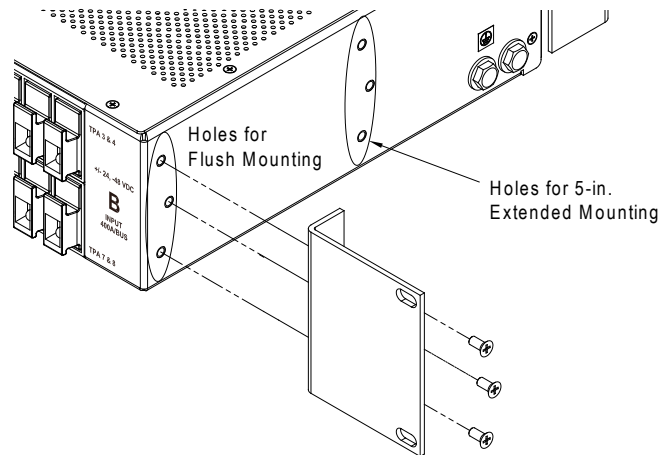


Figure 2 - Bracket Orientation

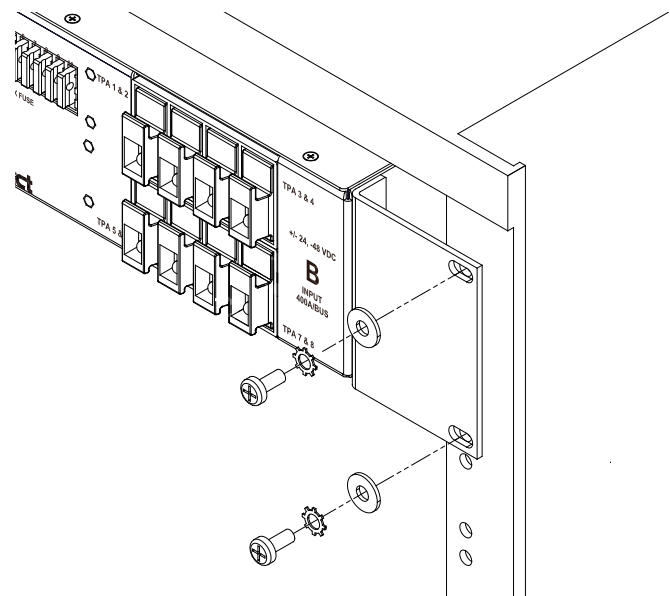


Figure 3 - Rack Mounting

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! 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.

6. Use a listed (approved) crimping tool to attach a listed (approved), dual-hole compression lug onto a suitable ground wire. (The size of the ground depends on the input interruption device.)
7. If required, lightly coat anti-oxidant on the lug and grounding surface on the side of the panel.
8. Connect the lug using the ¼ - 20 bolts and flat washers provided, as shown in Figure 4.
9. Tighten the bolt to 50 in.-lb (5.5 N•m).

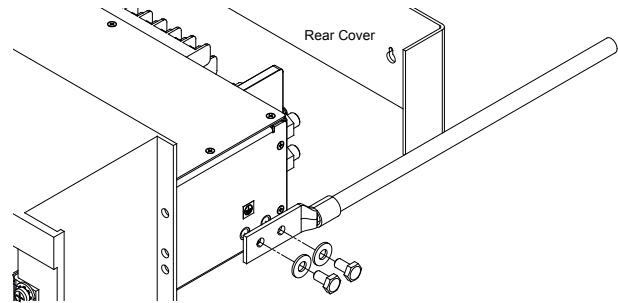


Figure 4 - Ground Lug Connection

⚠ WARNING

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

10. Make sure the input power is off (open breaker, dummy fuse, or open fuse holder at the primary power distribution unit [PDU]) before connecting this panel's input cables to the PDU.
11. For input wiring — wiring used as inputs to this distribution panel — crimp dual-hole compression lugs onto #1 AWG to 600MCM copper wires. The choice of input wiring depends on the following criteria:
 - Input interrupt device rating affects the size of input wiring.
 - Ambient operating temperature affects the type of input wire insulation.
12. See Section “1.4.1 Compression Lugs” on page 11 to select your lugs. Insulate the lug barrels with UL94 V-0 rated heat-shrink tubing.
13. Clean the terminals and lugs with a non-abrasive, non-metallic pad.
14. If required, lightly coat anti-oxidant on lugs and input **BATT** and **RTN** terminals.

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15. Connect the lugs to the input terminals on the back of the panel, as shown in Figure 5.
16. Tighten the lugs to 140 in.-lb (~15½ N•m).
17. Make sure the TPA and GMT fuse positions are either empty or contain dummy fuses (phoney, inoperative, all-plastic slugs). If necessary, pull out the TPA carrier about an inch from its holder to disengage the TPA fuse, as shown in Figure 6.
18. Enable the fuse or breaker at the PDU (400A max.) to turn on Feed A to Side A of the panel and then check the voltage and polarity at input connectors of the panel. Also, check that:

- Power **A** LED on the front of the panel turns on (green).
- Power **B** LED must turn red.

19. With **A** LED green (normal operation) — but with **B** LED off (failure operation) — test the power-fail relay and contacts at **A PWR** alarm terminals on the rear of the panel:

- Expect continuity (0Ω) between Terminals **C** and **NC**.
- Expect an open circuit ($\infty\Omega$) between Terminals **C** and **NO**.

20. Also, test the fuse alarm relay contacts at the FUSE alarm terminals on the rear of the panel.

- Expect continuity (0Ω) between Terminals **C** and **NC**.
- Expect an open circuit ($\infty\Omega$) between Terminals **C** and **NO**.

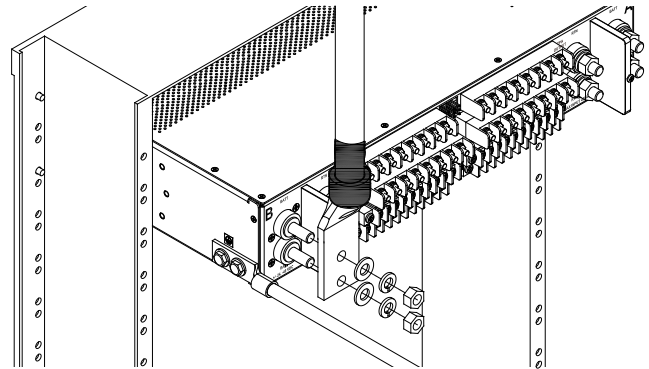


Figure 5 - Input Lugs

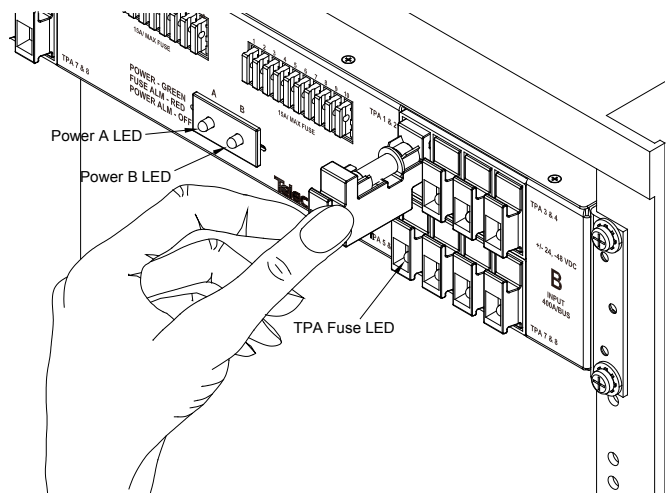
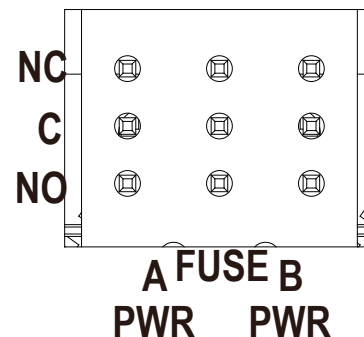


Figure 6 - Disengaging a TPA Fuse Holder



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21. Repeat Steps 18 through 20 to power up Side B. **A** and **B** power LEDs must both be green.
22. Make sure none of the fuse positions contain operable fuses.
23. For TPA output wiring, crimp single-hole lugs onto one end of the #18 to #6 AWG copper output wires, as required by NEC. (Work with one output wire at a time.)
24. Clean the panel terminals and lugs with a non-abrasive, non-metallic pad.
25. If required, lightly coat anti-oxidant on the lugs and output **BATT** and **RTN** terminals.
26. Connect the lug to the terminals, as shown in Figure 7. (NEC specifies only one lug and load at each output terminal.)
27. Tighten the nuts to 20 in.-lb (~2.3 N•m).
28. Connect the other end of the output wire to load.
29. For GMT output wiring, use #22 to #12 AWG copper wire. (Work with one wire at a time.) At the panel end of the wire, crimp a single-hole ring or fork lug, as required by NEC.
30. Clean the panel terminals and lug (if applicable) with a non-abrasive, non-metallic pad.
31. If required, lightly coat anti-oxidant on lug/wire and output **BATT** and **RTN** terminals.
32. Connect to the terminals, as shown in Figure 8. (NEC specifies only one load at each output terminal.)
33. Tighten the panhead screws to no more than 6.3 in.lb (~0.7 N•m).
34. Connect the other end of the output wire to load.

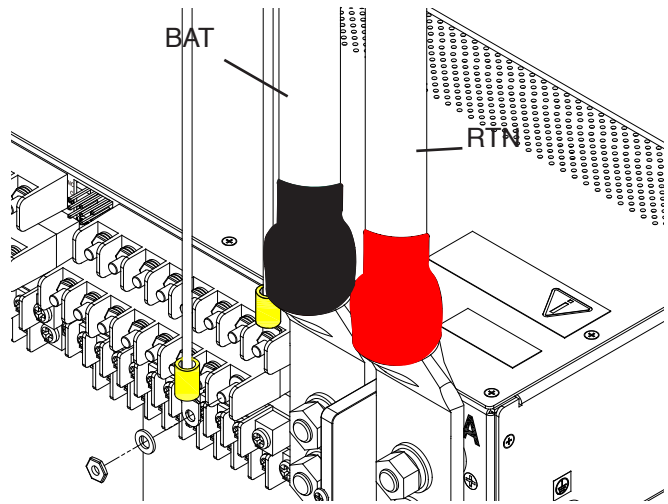


Figure 7 - TPA Output Lug Connections

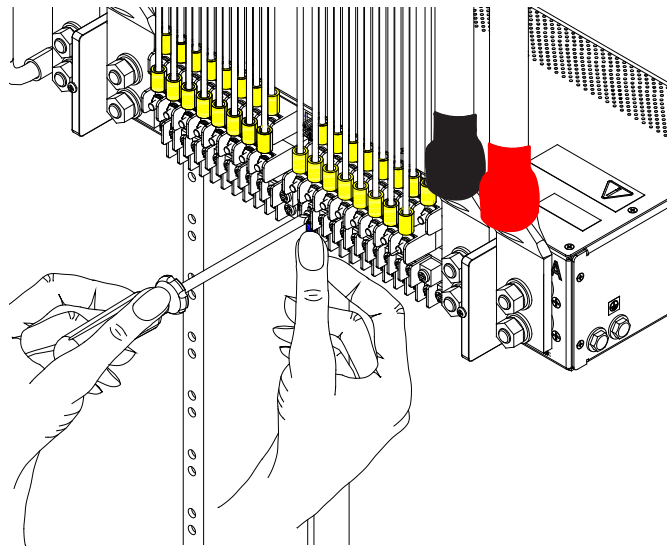


Figure 8 - GMT Output Lug Connections

! 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 GMT fuse sizes between 10A and 15A not exceed 70% of the fuse rating. For example, the load for a 15A GMT fuse should not exceed 10.5A (15A x .70 = 10.5A).

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35. Make sure the load devices are switched off and then install the fuses:

NOTE: Under load, TPA modules are disconnect devices only and must not be used to reconnect power to enabled equipment loads. Reconnecting a TPA module under power with an enabled load may damage the TPA module.

- For a TPA fuse, pull out TPA fuse carrier and insert operable fuse, as shown in Figure 9.
- For a GMT fuse, pull out the dummy fuse, and insert an operable fuse, as shown in Figure 10.

36. Test power and polarity at input of each equipment load.

37. If possible:

- Temporarily replace one of the operable TPA fuses with a blown fuse to check that the TPA Fuse LEDs light red. Also, check the **FUSE** alarm terminals on the rear of the panel:
 - Expect an open circuit (00Ω) between Terminals **C** and **NC**.
 - Expect continuity (0Ω) between Terminals **C** and **NO**.

Re-install the operable TPA fuse before proceeding.

- Likewise, replace one of the operable **GMT fuses** with a blown fuse to verify that the **FUSE** alarm terminals are also as specified above. Then re-install the operable GMT fuse before proceeding.

38. If desired, connect the remote external audio/visual alarm indicator wires (solid or tinned wires, #26 to #20 AWG) to the **PWR** and **FUSE** alarm terminals, as implied in Figure 11.

39. Carefully re-install the rear cover.

40. Record the TPA and GMT output destinations in accordance with operating company procedures and guidelines.

41. Turn on equipment loads one at a time to verify the proper operation of the loads.

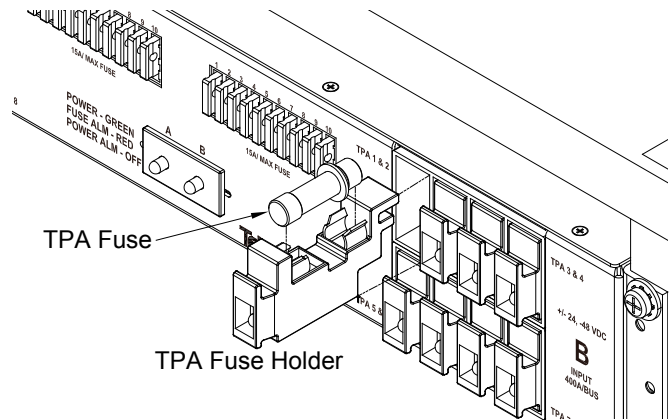


Figure 9 - Installing TPA Fuses

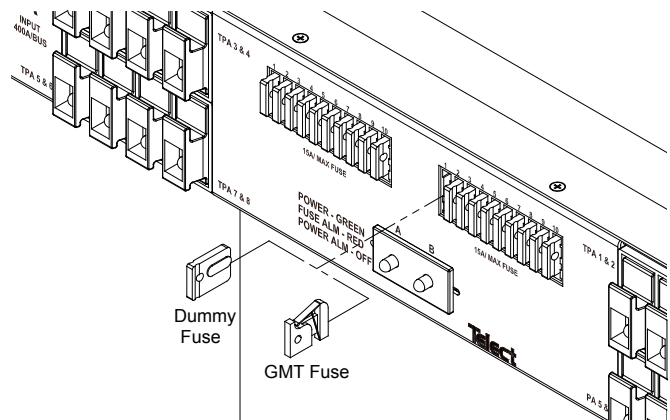


Figure 10 - Installing GMT Fuses

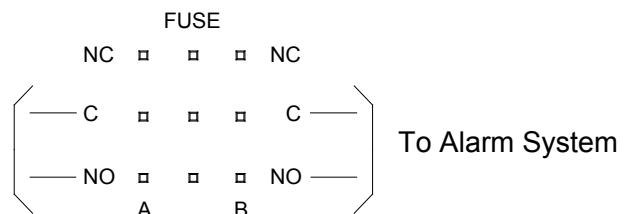
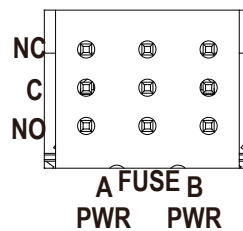


Figure 11 - Wirewrap Alarm Terminal Connections (Typical)

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1.3 Accessories

The following tables list optional and replacement items for the panel. For wire sizing and labelling, please refer to Wire Sizing &, Label Convention Chart (Telect Part No. 117995) included with your panel.



WARNING

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

Table 1 - Accessories

Item	Description	Part Number
Alarm Card, Standard	Power A and B LED Interconnections; Power and Fuse Alarms	304154
TPA Fuses	5A	124818
	10A	124819
	15A	124820
	20A	124821
	30A	122734
	40A	122738
	50A	122739
GMT Designation Pin Holder	10-Position, Adhesive-Backed Holder for Colored, Rivet-Shaped GMT Fuse-Current-Rating Pins	101556-1
GMT Fuse Puller (Recommended)	Medium-Duty, Tweezer-Style Tool for Removing GMT Fuses	06113-03
GMT Phoney Fuse	Dummy Plastic Slug	132748
GMT Fuse Safety Cover	Solder Splash Protection	116915

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Table 2 - GMT Fuses

Item	Description	Part Number of Fuse	Part Number of Colored Designation Pin
GMT Fuses	0.18A Yellow (YEL)	130781	102435-21
	¼A Violet (VIO)	100151	102435-2
	½A Red (RED)	004001	102435-5
	¾A Brown (BRN)	004008	102435-7
	1A Gray (GRY)	100991	102435-8
	1⅓A White (WHT)	004006	102435-9
	1½A White/Yellow (WHT/YEL)	004011	102435-10
	2A Orange (ORN)	004002	102435-11
	2.5A White/Orange (WHT/ORN)	130783	102435-12
	3A Blue (BLU)	004012	102435-13
	3.5A White/Blue (WHT/BLU)	130782	102435-14
	4A White/Brown (WHT/BRN)	004013	102435-15
	5A Green (GRN)	004014	102435-16
	7½A Black/White (BLK/WHT)	004010	102435-17
	10A Red/White (RED/WHT)	004015	102435-18
	12A Yellow/Green (YEL/GRN)	102287	102435-19
15A Red/Blue (RED/BLU)	102288	102435-20	

1.3.1 Compression Lugs

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

Table 3 - Input Power Lugs (3/8 in. Dual Holes on 1 in. Centers, Uninsulated)

	400MCM	500MCM	750MCM	777.7MCM
T & B	54216 (T & B Die Code 76)	54218 (T & B Die Code 87)		
Burndy	YA322TC38 (Burndy Die Code 19)	YA342TC38 (Burndy Die Code 20)	YA392NT38 (Burndy Die Code 24)	YA44L-2NT38-FX (Burndy Die Code L115)
Panduit	LCD400-38D-6 (Panduit/T&B Die Code 76) (Burndy Die Code 19)	LCD500-38D-6 (Panduit/T&B Die Code 87) (Burndy Die Code 20)	LCDN750-38D-6 (Panduit/T&B Die Code 106) (Burndy Die Code 24)	

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Table 4 - Ground Lugs (1/4 in. Dual Holes on 3/4 in. Centers, Uninsulated)

	#6 AWG	#4 AWG	#2 AWG
T & B	54205 (T&B Die Code 24)		
Burndy	YAV6CL2TC14E2FX (Burndy Die Code 7)	YA4L2TC14E2 (Burndy Die Code 8)	YA2CL2TC14E2 (Burndy Die Code 10)
Panduit	LCD6-14B-L (Panduit/T&B Die Code 24) (Burndy Die Code 7)	LCD4-14B-L (Panduit/T&B Die Code 29) (Burndy Die Code 8)	LCD2-14B-Q (Panduit Die Code 33) (Burndy Die Code 10)

Table 5 - TPA Output Ring Lugs for #10 Stud Terminals (Nylon Insulated Except Where Footnoted)

	#16-14 AWG	#12 AWG	#10 AWG	#8 AWG
AMP	36160	36161	36161	324043
Burndy		YAE12NBOX	YAE10NBOX	YA8CLBOX* (Burndy Die Code 21)
Panduit	PN14-10RX-C**	PN10-10R-L†	PN10-10R-L†	LCA8-10-L* (Panduit Die Code 21) (Burndy Die Code 21)
* Uninsulated		** 100 Count		† 50 Count

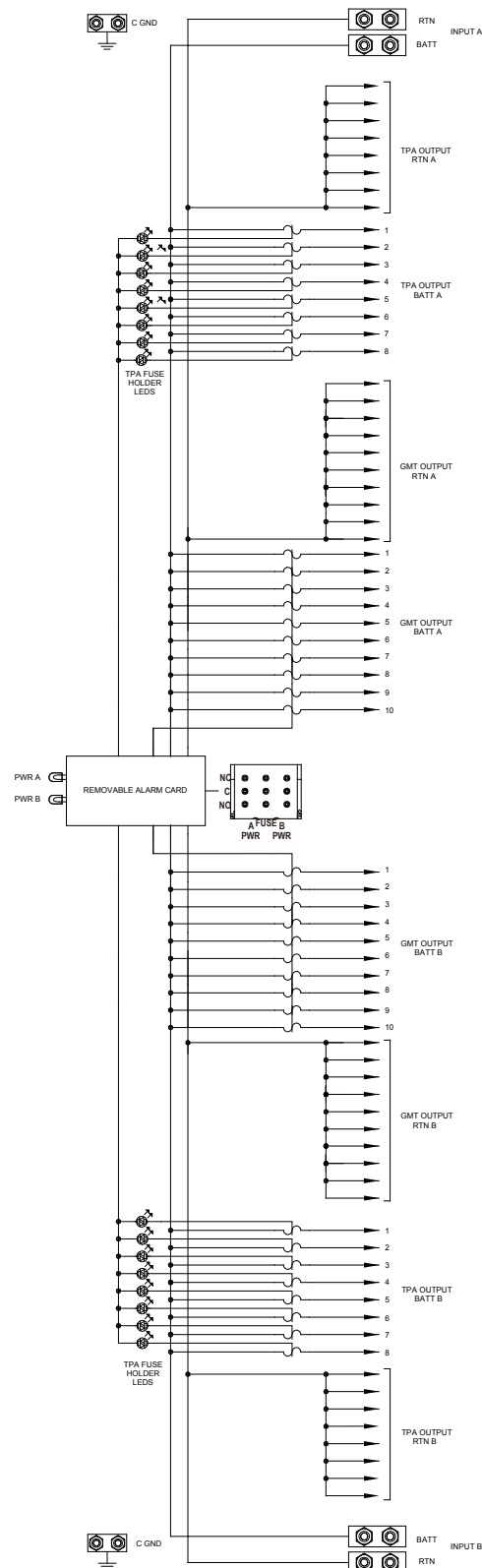
Table 6 - GMT Output Ring Lugs for #6 Screw Terminals (Nylon Insulated Except as Footnoted)

	#26-22 AWG	#22-16 AWG	#16-14 AWG
Panduit	PN22-6R-C Ring*	PK18-6R-C Ring* **	PN14-6R-C Ring*
AMP	326878	36151	320561
Burndy		YAE18N21BOX	YAE14N43BOX
* 100 Count		** KYNAR Insulation	

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1.4 Schematic Drawing

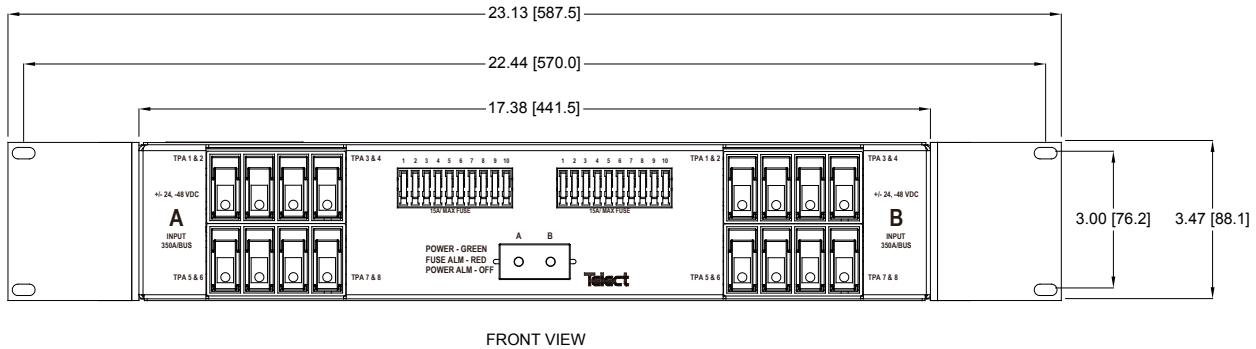
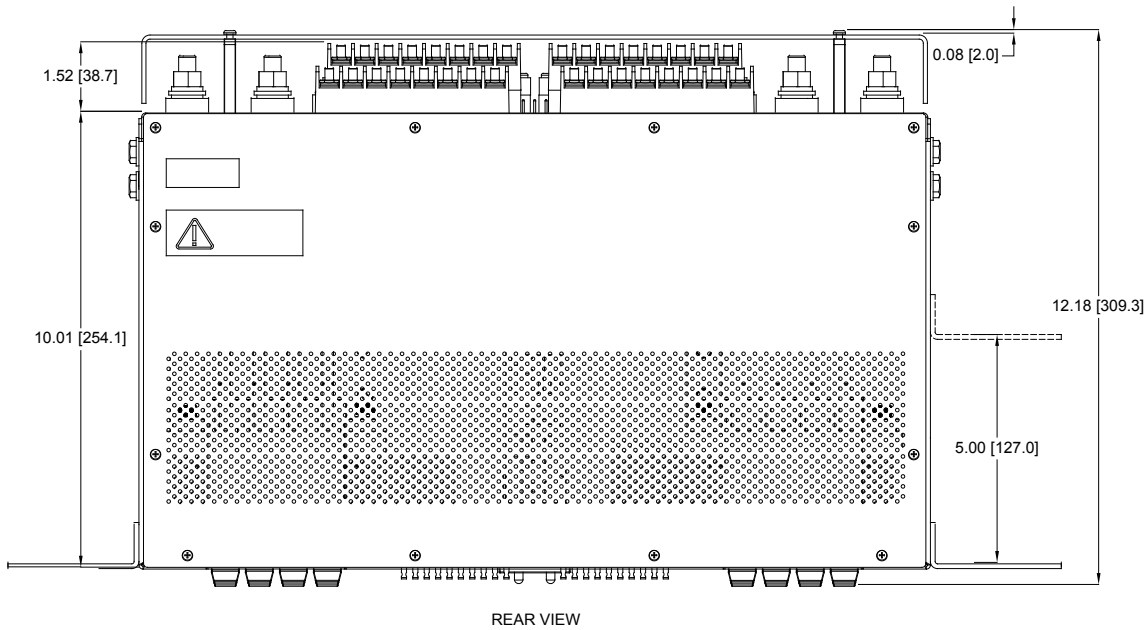
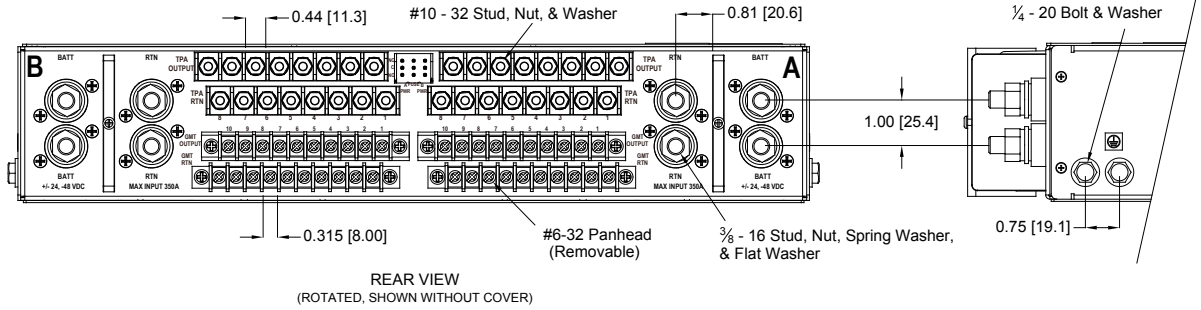


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1.5 Assembly Drawing

- NOTES: 1. Dimensions are in in. [mm].
2. Panel not supplied with fuses.



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