

100A/60A Universal Voltage GMT Fuse Panels With Enhanced Power/Fuse & Bay Alarms

GMT-Series Installation Guide



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About Telect

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.

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E-mail: getinfo@telect.com

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GMT-Series Installation Guide

1.1 Overview

Telect's 60A and 100A GMT Panels are compact 1RU EIA power panels enabling ± 24 and -48 Vdc power protection for a variety of wireline and wireless telecommunications and data equipment. These GMT-Series panels are ideal for powering tracer lamps in dense DSX bays, as well as network equipment with low-to-medium power requirements.



Most GMT-Series panels fit either 19-in. or 23-in. racks. (See the comparison chart below.) All panels are white except HPGMT10-BLK, which is black.

The panel provides total front access to fuses and LED status. Below the bezel holding the status LEDs is a pull-out designation card holder.

All terminals for inputs, outputs, ground, and alarms are on the same side — either all on the rear or all on the front. All terminals are covered by a single full-width transparent terminal cover:

- Inputs are either dual-hole lugs for studs (100A panels) or bare conductors for barrel connectors (60A panels).
- Ground terminals accept either single- or dual-hole lugs.
- Output screw-post terminals accept either ring or forked lugs, as well as bare wire.
- Power/fuse and bay alarms terminals, along with external bay alarm trigger terminals, are wirewrap pins.

GMT-Series panels differ in load rating (60A or 100A), capacity (10, 15, 20, and even 30 GMTs per side), single or dual feed, and total front access (GMT10FA and HPGMT10FA) panels vs. panels with rear-side terminals. All panels are 1RU with the exception of HPGMT10FA, which is 2RU.

The GMT fuse holders are mounted upside-down so that the GMT indicator flag flips downward when activated, making identification and detection easier, especially on tall racks. In addition, the GMT fuse holders are mounted separately — not as a fuse block — thereby making fuse-position management unnecessary when dealing with 10A, 15A, and 20A GMT fuses. Holes for color-coded fuse designation pins are located below each fuse position.

The panel also features separate power and fuse failure status LEDs and power alarm relay connections for **each** feed. Major and minor bay alarm LEDs and wirewrap terminals are controlled via an on-board relay triggered by an external switch closure. All on-board relay

contacts are dry Form-C. All LEDs and alarm relays and contacts are located on an easily removable alarm card.

Telect supplies phoney fuses for each GMT fuse position. Visit our website (www.telect.com) to order GMT fuses, fuse designation pins, and other accessories. The following table shows a comparison of the GMT-series fuses.

All Telect's GMT-Series panels are UL listed (US and Canada, File E139903) and NEBS Level 3 certified, and RoHS compliant.

Features	GMT10	GMT10FA	GMT20	GMT20S	HPGMT10	HPGMT10FA	HPGMT15	HPGMT20	HPGMT20S	HPGMT30S
60A Max. Input	x	x	x	x						
100A Max. Input					x	x	x	x	x	x
20A Max. Fuse Position	x	x		x	x	x	x	x	x	x
15A Max. Fuse Position			x							
Universal VDC	x	x	x	x	x	x	x	x	x	x
Dual Bus	x	x	x		x	x	x	x		
Single Bus				x					x	x
Fuse Positions per Feed	10	10	20	20	10	10	15	20	20	30
Rack Units	1	1	1	1	1	2	1	1	1	1
Width	19"	23"	19"	19"	19"	19"	19"	23"	19"	19"
Front Access		x				x				
Stud Input					x	x	x	x	x	x
Screw Clamp Input	x	x	x	x						
Bay Alarm	x	x	x	x	x	x	x	x	x	x

Legend:

HP=High Power, FA=Front Access, S=Single Bus, NF=Noise Filter

Figure 1 - GMT-Series Comparison Chart

1.2 Specifications

Inputs:	
Voltage & Range	±20 Vdc to ±60 Vdc @ 20°C ±22 Vdc to ±58 Vdc @ 55°C
Max. Input Load Rating	60A/100A depends on model
Max. Power Dissipation at Full Load	<ul style="list-style-type: none"> < 50W per side (max.) for panels rated for 60A < 75W per side (max.) for panels rated at 100A
% of Full Load Power Dissipation	less than 1% for all models
Max. Input Interruption Device	<ul style="list-style-type: none"> •75A for 60A panels •125A for 100A panels
Input Terminals 100A Panels 60A Panels	Dual 1/4-20 studs on 5/8 in. centers. Torque KEPS nut (using 7/16 in. or 12 mm socket) to ~50 in.-lb (~5.6 N•m), max. Barrel-style screw-down terminals for #14 AWG to #6 AWG bare conductor. Torque to 16 in.-lb (1.8 N•m), max.

Outputs:	
Max. GMT Output Fuse (ea.)	<ul style="list-style-type: none"> •20A for all but GMT20 •15A for Model GMT20
Max. GMT Output Load (ea.)	<ul style="list-style-type: none"> •14A continuous for all but Model GMT20 •10.5A for Model GMT20
Max. Total GMT Output Per Side	<ul style="list-style-type: none"> •100A for 100A panels •60A for 60A panels
Output Terminals (Wire-Binding Screw Posts)	<ul style="list-style-type: none"> •#6-32 for all panels except Model GMT20 •#3-48 for Model GMT20
GMT Output Wire Size Range	<ul style="list-style-type: none"> •#22 to #14 AWG, depending on output fuse (.6A to 20A) for all but GMT20 •#30 to #16 AWG, depending on output fuse (.18A to 15A) for Model GMT20
Interrupt Rating	450A
Short-Circuit Withstand Current	450A

Alarms:	
Alarm Relay Contacts	Dry Form-C contacts (1A @ 30 Vdc, 0.3A @ 100 Vdc, 0.5A @ 125 Vac)
Max. Alarm Power Rating	@24V: 72 mA (1.73W) @48V: 147 mA (7.06W)

Alarms:	
Alarm Wire Size	#22 to #18 AWG
Alarm Terminals	Wirewrap

Grounding:	
Chassis GND Terminal Studs (With KEPS Nuts) for Dual-Hole Compression Lug	#10-32 studs on 5/8-in. centers. Torque KEPS nut (using 3/8 in. or 10 mm socket) to ~20 in.-lb (~2.3 N•m), max.
GND Wire Size	<ul style="list-style-type: none"> •#6 (preferred) or #8 AWG for a 100A panel •#10 AWG for a 60A panel

Dimensions (Nominal): ^a	
Width x Height x Depth for all except TFA & HPGMT20 ^b	17 x 1.75 x 9 in. (432 x 44 x 229 mm)
Width x Height x Depth for GMT10FA & HPGMT20 ^c	21 x 1.75 x 9 in. (533 x 44 x 229 mm)
Width x Height x Depth for HPGMT10FA ^d	17 x 3.50 x 9 in. (432 x 89 x 229 mm)

- a. Without mounting brackets.
- b. All 1RU panels that fit either a 19-in. or 23-in. rack.
- c. Models GMT10FA & HPGMT20 only fit 23-in racks.
- d. Model HPGMT10FA is a 2RU panels that fit either a 19-in. or 23-in rack.

Fit & Finish	
Material	16-gauge steel
Color	White powder coat for all but HPGMT10-BLK (black)

Weights (Approximate)		
All Single & Dual Panels with 10 GMTs Per Side, Except GMT10FA & HPGMT10FA	Installed	8 lb (3.5 kg)
	Shipping	11 lb (5 kg)

Weights (Approximate)		
HPGMT15	Installed	9 lb (4 kg)
	Shipping	12 lb (5.5 kg)
All Single & Dual Panels with 20 or 30 GMTs Per Side, Except HPGMT20	Installed	11 lb (5 kg)
	Shipping	14 lb (6.25 kg)
Models GMT10FA & HPGMT20	Installed	11 lb (5 kg)
	Shipping	14 lb (6.25 kg)
Model HPGMT10FA	Installed	11 lb (5 kg)
	Shipping	14 lb (6.25 kg)

Environment:	
Operating Temperature	-10°C (14°F) to 55°C (131°F)
Humidity	0 to 90% and noncondensing

1.3 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 to 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 accessible disconnect device shall be incorporated in the building installation wiring

1.4 Installation

! ALERT

ALERT! Install this product 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 technicians.

Verify all connections meet requirements specified in local electric codes or operating company guidelines before supplying power. Unit shall be protected by a listed circuit breaker or branch-rated fuse rated maximum 75A (for 60A-rated feeds) and maximum 125A (for 100A-rated feeds).

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. 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.

NOTE: All panels except Models GMT10FA and HPGMT20 can be mounted in 19-in. EIA racks. Telect also offers bracket kits for WECO and ETSI racks. (See our website at telect.com.) GMT10FA and HPGMT20 only fit 23-in. racks.

NOTE: All panels can be flush-mounted or extended by 2 in. or 4 in. beyond the rack flange.

2. If necessary, remove three screws and reposition/re-align brackets on sides of distribution panel, as shown in the illustration on the right.

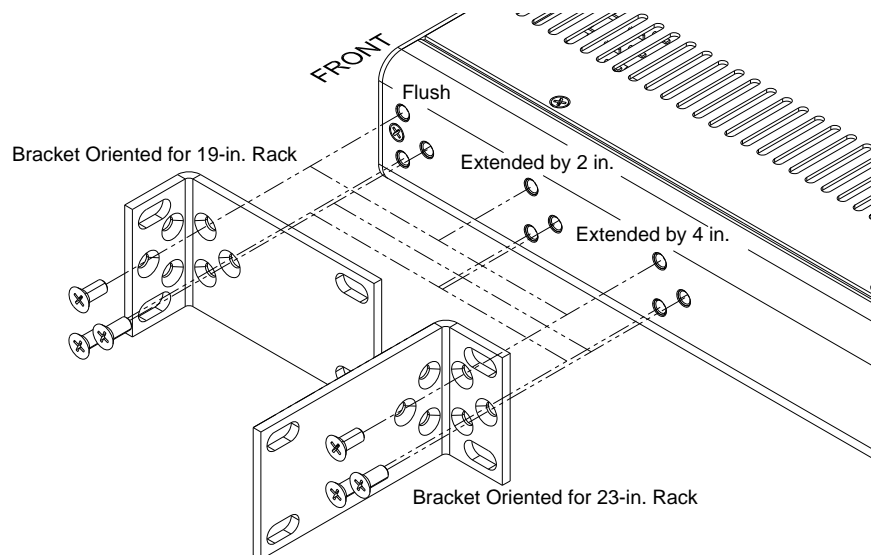


Figure 2 - Bracket Orientation

3. Locate an unused rack position, normally at the top of the rack. Mount the panel to the rack using four, #12-24 thread-cutting screws and lock washers provided, as shown in Figure 3. Tighten screws to 35 in.-lb (4.29 N•m).
4. Remove the transparent terminal cover, shown in “Ground Lug Connection” on page 7.

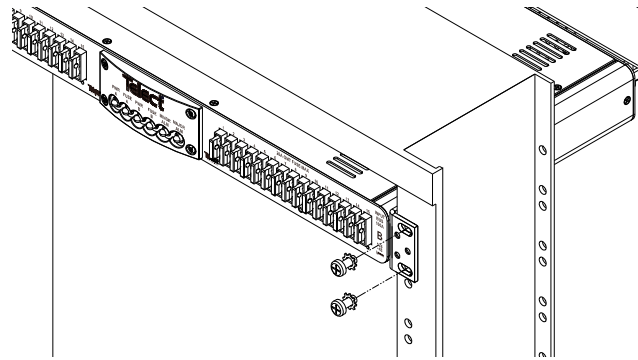


Figure 3 - Rack Mounting

WARNING

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

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.

5. Use a listed (approved) crimping tool to attach a listed (approved), dual-hole, right-angle compression lug for #10 studs on ⁵/₈-in. centers onto #6 AWG ground wire. (Min. #8 AWG for a 100A feed; #10 AWG for a 60A feed.)

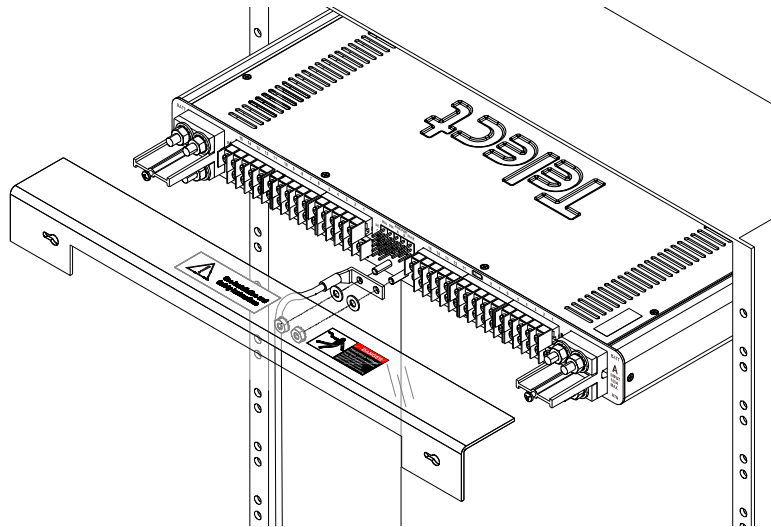


Figure 4 - Ground Lug Connection

6. If desired (highly recommended), lightly coat anti-oxidant on lug, grounding terminal, and surrounding contacting surface.
7. Connect the lug using the #10-32 KEPS nuts and flat washers provided, as shown in “Ground Lug Connection” on page 7. Tighten KEPS nuts to ~20 in.-lb (~2.3 N•m), max.
8. Make sure input power is off (open breaker, phoney fuse, or open fuse holder at primary power distribution unit [PDU]) before connecting this panel’s input cables to that PDU.

WARNING

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

9. For input wiring — wiring used as inputs to this distribution panel — do one of the following: (Refer to the following illustrations.)

For input wiring on a 100A panel —

- a. Crimp dual-hole compression lugs onto #8 to #1/0 AWG conductors (#1/0 AWG with a 60C insulation rating, minimum for a 100A feed). Insulate lug barrels with UL94 V-0 rated heat-shrink tubing.
- b. Clean terminals and lugs with a nonabrasive, nonmetallic cloth.
- c. If desired (highly recommended), lightly coat anti-oxidant on lugs, terminals, and contacting surfaces, and then connect lugs to input **BATT** and **RTN** terminals on panel. Torque KEPS nuts to ~50 in.-lb (~5.6 N•m), max.

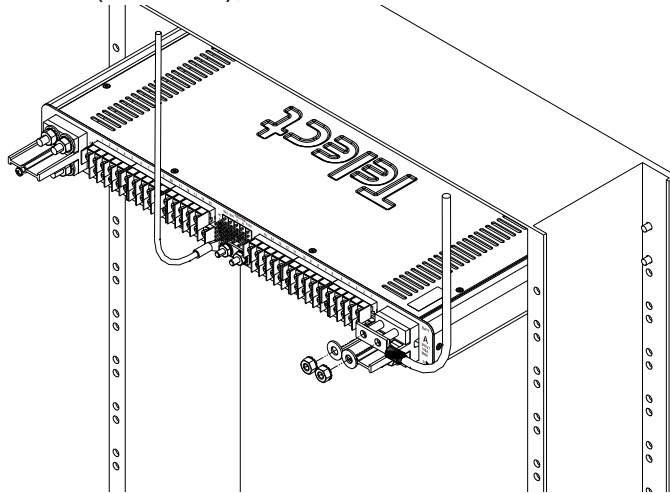


Figure 5 - Input Connections on a 100A Panel

For input wiring on a 60A panel —

- a. Strip off about ¾ in. (10 mm) of insulation at end of input conductors (min. #6 AWG for a 60A feed).
- b. If desired (highly recommended), lightly coat anti-oxidant on the bare conductor.

- c. Insert the bare conductor into the barrel connector as indicated in the illustration, and then tighten the screw to 16 in.-lb (1.8 N•m), max.

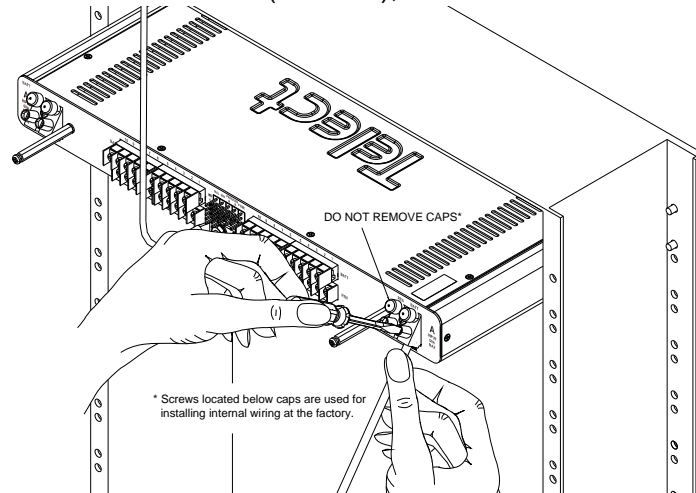


Figure 6 - Input Connections on a 60A Panel

! ALERT

ALERT! Only service personnel may replace fuses. The installer must verify that a readily accessible protection device is incorporated in the building wiring feeding the fuse panel: 125A (max.) protection device for a 100A panel; 75A (max.) for a 60A panel.

10. Make sure GMT fuse positions are either empty or contain dummy fuses (phony, inoperative, all-plastic slugs).
11. Enable protection device (fuse or breaker) at primary PDU to turn on Feed A to Side A of panel and then check voltage and polarity *at input connectors of panel*. Also, check that

- **PWR A** LED on front of panel turns on (green).
- **PWR B** LED and both **FUSE** LEDs must be off.

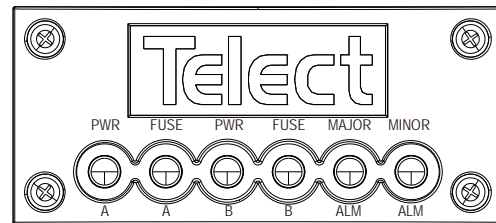


Figure 7 - Status LEDs on Face of Removable Alarm Card

12. With **PWR A** lit — but with **PWR B** LED off — test power-fail relay and contacts at **PWR A** alarm terminals on rear of panel:
- Expect continuity (0Ω) between Terminals **C** and **NC**.
 - Expect an open circuit ($\infty\Omega$) between Terminals **C** and **NO**.

13. Also, test fuse alarm relay contacts at **FUSE** alarm terminals, then

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

14. Repeat Steps 11 through 13 to power up Side B.

PWR A and **PWR B** LEDs must both be green.



Figure 8 - Alarm Terminals on Rear of Panel

15. With **PWR A** and **PWR B** lit, test power-fail relay and contacts at **PWR A** and **PWR B** alarm terminals:

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

16. Make sure *none* of the fuse positions contain real, operable fuses.

17. For GMT output wiring, proceed as follows:

For all Models except GMT20 —

- Working with one wire at a time, either

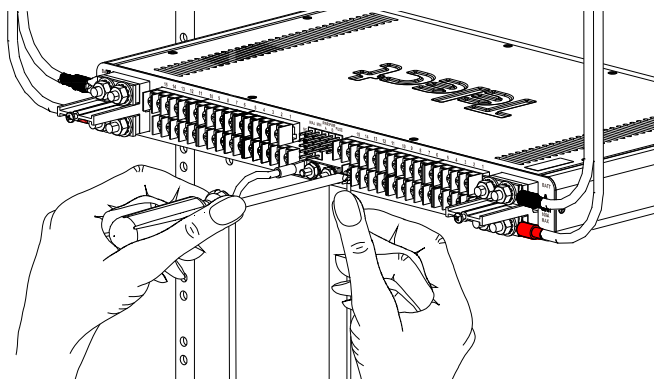


Figure 9 - Output Connections

- Crimp a single-hole ring or fork lug for a #6-32 screw-post terminal, as required by NEC, or
 - Strip $\frac{3}{8}$ in. (10 mm) of insulation from a #26 to #12 copper wire for a bare-wire connection.
- Clean the panel terminals and lug (if applicable) with a nonabrasive, nonmetallic cleaning pad.
 - If required, lightly coat anti-oxidant on lug/wire and output **BATT** and **RTN** terminals, and then connect to terminals. (NEC specifies only one load at each output terminal.) Tighten #6-32 screws using either a flat-tipped screwdriver or Phillips screwdriver (for cross-recessed screw heads) to no greater than 6 in.-lb ($\sim 0.7 \text{ N}\cdot\text{m}$). Connect other end of output wire to *load*.

For Model GMT20 —

- Working with one wire at a time, either
 - Crimp a single-hole ring or fork lug for a #3-48 screw-post terminal, as required by NEC, or

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

Re-install operable GMT fuse before proceeding.

If desired, connect remote, external audio/visual panel alarm indicator wires (solid wires, #22 to #18 AWG) to wirewrap **PWR** and **FUSE** alarm pins on rear of panel, as shown below on the right.

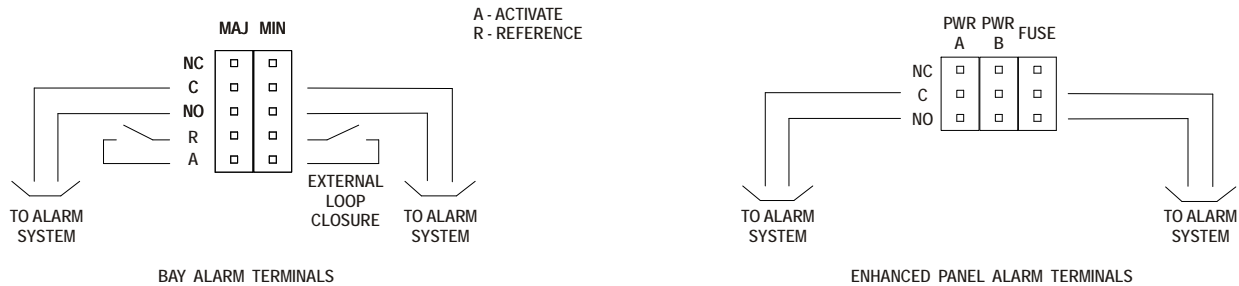


Figure 11 - Alarm Schematics (Rear of Designation Card)

22. If desired, connect remote audio/visual bay alarms indicator wires to the **MAJ** (major) and **MIN** (minor) alarm pins. Also install switch closure wires to the **A** (activate) and **R** (reference) pins, as shown above on the left, to control the bay alarm relay.

23. Re-install terminal cover.

24. Lastly, enable equipment loads one at a time to verify the proper operation of loads.

NOTE: For service or 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.

1.5 Accessories & Alarm Card

The following lists optional and replacement items for the panel. For compression lugs, 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.

1.5.1 Input & GND Lugs

The following table describes the available input lugs for stranded copper conductors with straight dual-hole lugs for 1/4-in. studs on 5/8-in. centers.

Table 1 - Input Lugs

Source	#1/0 AWG	#2 AWG	#4 AWG	#6 AWG	#8 AWG
T & B	--	--	54206 (T&B Die Code 29)	54205 (T&B Die Code 24)	542040416 (T&B Die Code 21)

Table 1 - Input Lugs

Source	#1/0 AWG	#2 AWG	#4 AWG	#6 AWG	#8 AWG
Panduit	--	LCDN2-14A-Q (Panduit/T&B Die Code 33) (Burndy Die Code10)	LCD4-14A- (Panduit/T&B Die Code 29) (Burndy Die Code 8)	LCD6-10A-L (Panduit/T&B Die Code 24) (Burndy Die Code 7)	LCD8-10A-L (Panduit/T&B Die Code 21) (Burndy Die Code 49)
Burndy	YA25L2NT1 4E1 (Burndy Die Code12)	--	YA4CL2TC14 (Burndy Die Code 8)	YA6CL2TC14 (Burndy Die Code 7)	YA8CL2TC14 (Burndy Die Code 49)

The following table describes the available ground lugs for stranded copper conductors with 90° dual-hole lugs for #10 studs on 5/8-in. centers.

Table 2 - Ground Lugs

	#6 AWG	#8 AWG
T & B	256-30695-1356 (T&B Die Code 24)	54204UB (T&B Die Code 21)
Panduit	LCD6-10AF-L (Panduit/T&B Die Code 24) (Burndy Die Code 7)	LCD8-10AF-L (Panduit/T&B Die Code 21) (Burndy Die Code 8)
Burndy	YA6CL2TC1090 (Burndy Die Code 7)	YA8CL2TC1090 (Burndy Die Code 49)

1.5.2 Single-hole Lug Part Numbers for GMT20 Output Terminals (For #3 Panhead Screws)

The GMT20 output terminals accommodate bare wire up to #16 AWG. If lugs are required, only three with insulated barrels apply for accommodating #22 - #14 AWG:

- AMP 324608 with a flanged (dog-eared), straight, forked tongue for #22 - #16 AWG
- Burndy TP14-2F with a straight, forked tongue for #16 - #14 AWG
- Burndy TP14-2Z with a flanged, straight, forked tongue, also for #16 - #14 AWG

1.5.3 GMT Fuses

For additional dummy fuses, order part #101557. For GMT safety (splash/splatter) covers, order part #116915 for GMT fuses up to 15A. Telect recommends using only UL-recognized supplementary protectors.

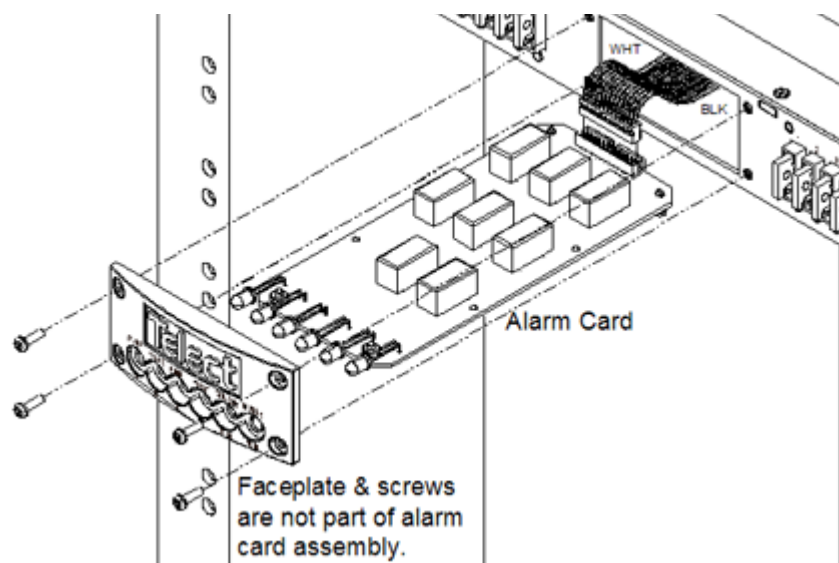
GMT Fuse	Part Numbers GMT Fuse	Colored Designation Pin Part No.
.18A Yellow (YEL)	130781	102435-21

¼A Violet (VIO)	100151	102435-2
½A Red (RED)	004001	102435-5
¾A Brown (BRN)	004008	102435-7
1A Gray (GRY)	100991	102435-8
GMT Fuse	Part Numbers GMT Fuse	Colored Designation Pin Part No.
1 ¹ / ₃ A 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
20A White/Green <u>Without</u> Safety Cover (WHT/ GRN)	127240	102435-22
20A White/Green <u>With</u> Safety Cover (WHT/GRN)	131340	

1.5.4 Alarm Card

The alarm card (Telect Part No. 304304) is fastened to the front of the panel by four Phillips screws (screws with cross-recessed heads). To remove the alarm card, remove the screws, gently slide out status LED bezel and alarm card, and then disconnect the header cables near the far end of the alarm card.

Figure 12 - Alarm Card



1.6 Diagrams

The diagrams that follow are representative of Telect's GMT-Series of power panels.

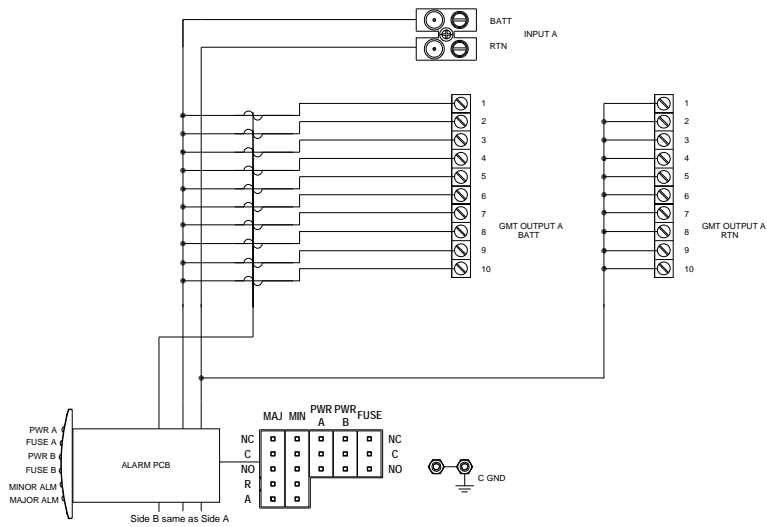


Figure 13 - GMT10 & GMT10FA

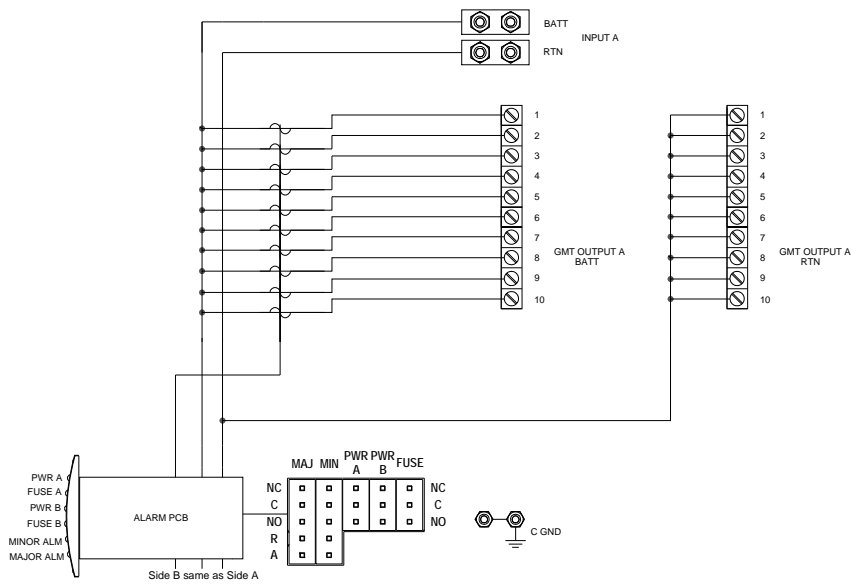
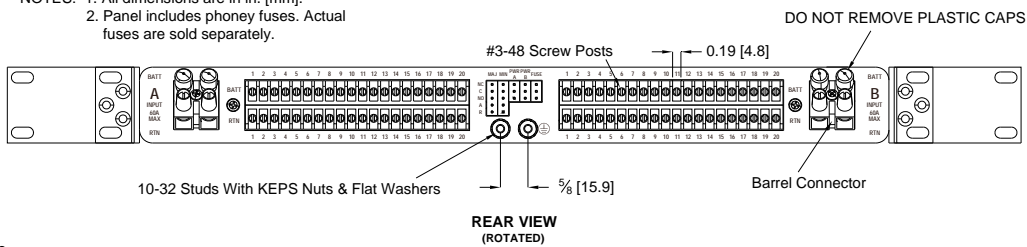


Figure 14 - HPGMT10 | HPGMT10S | HPGMT10FA

1.7 Dimensions

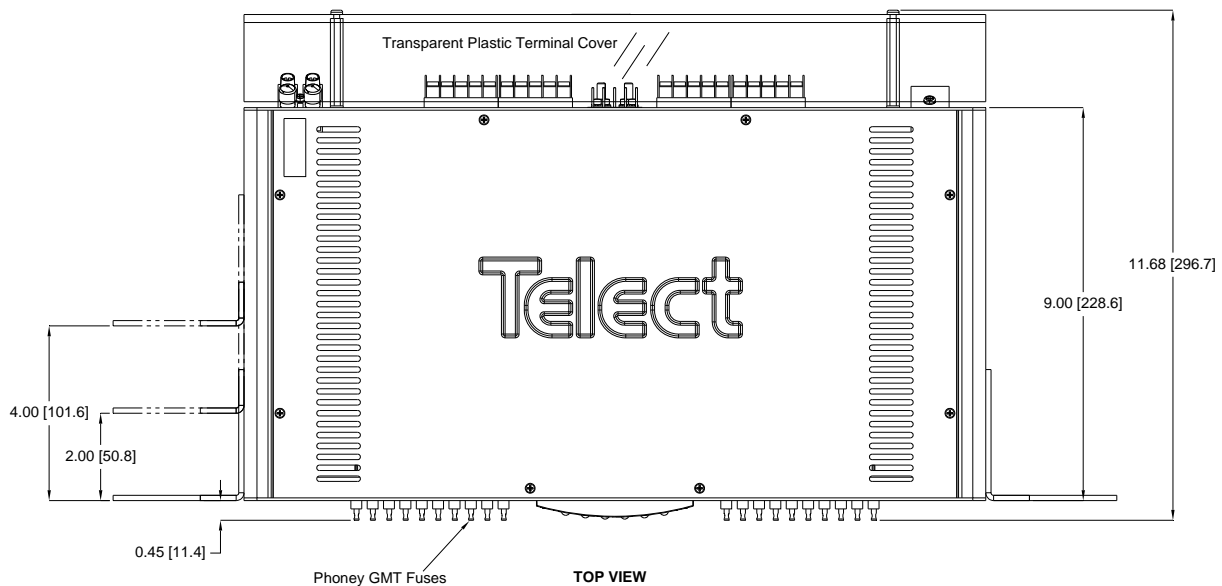
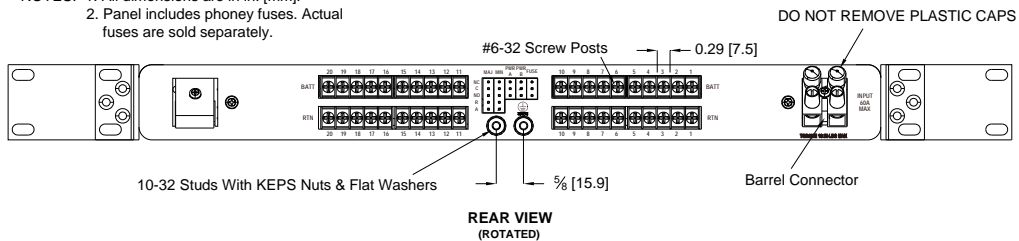
The dimensioned drawings that follow are representative of Telect's GMT-Series of power panels.

- NOTES: 1. All dimensions are in in. [mm].
2. Panel includes phoney fuses. Actual fuses are sold separately.

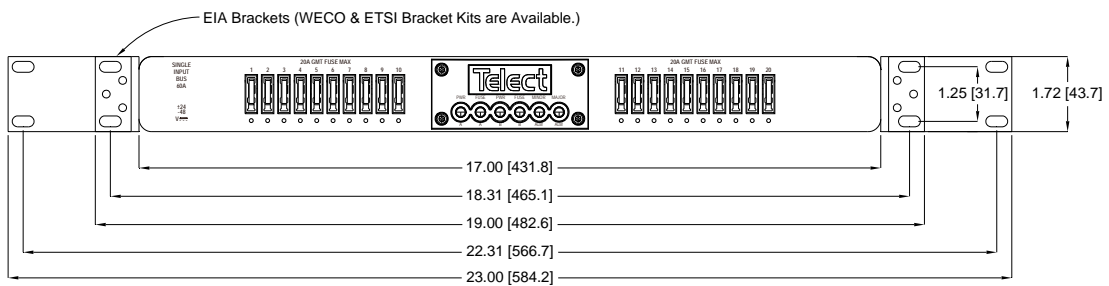


GMT20

- NOTES: 1. All dimensions are in in. [mm].
2. Panel includes phoney fuses. Actual fuses are sold separately.



TOP VIEW



GMT20S

FRONT VIEW

Figure 15 - GMT20S (Typical dimensions also for GMT20)

- NOTES: 1. All dimensions are in in. [mm].
 2. Panel includes phoney fuses. Actual fuses are sold separately.

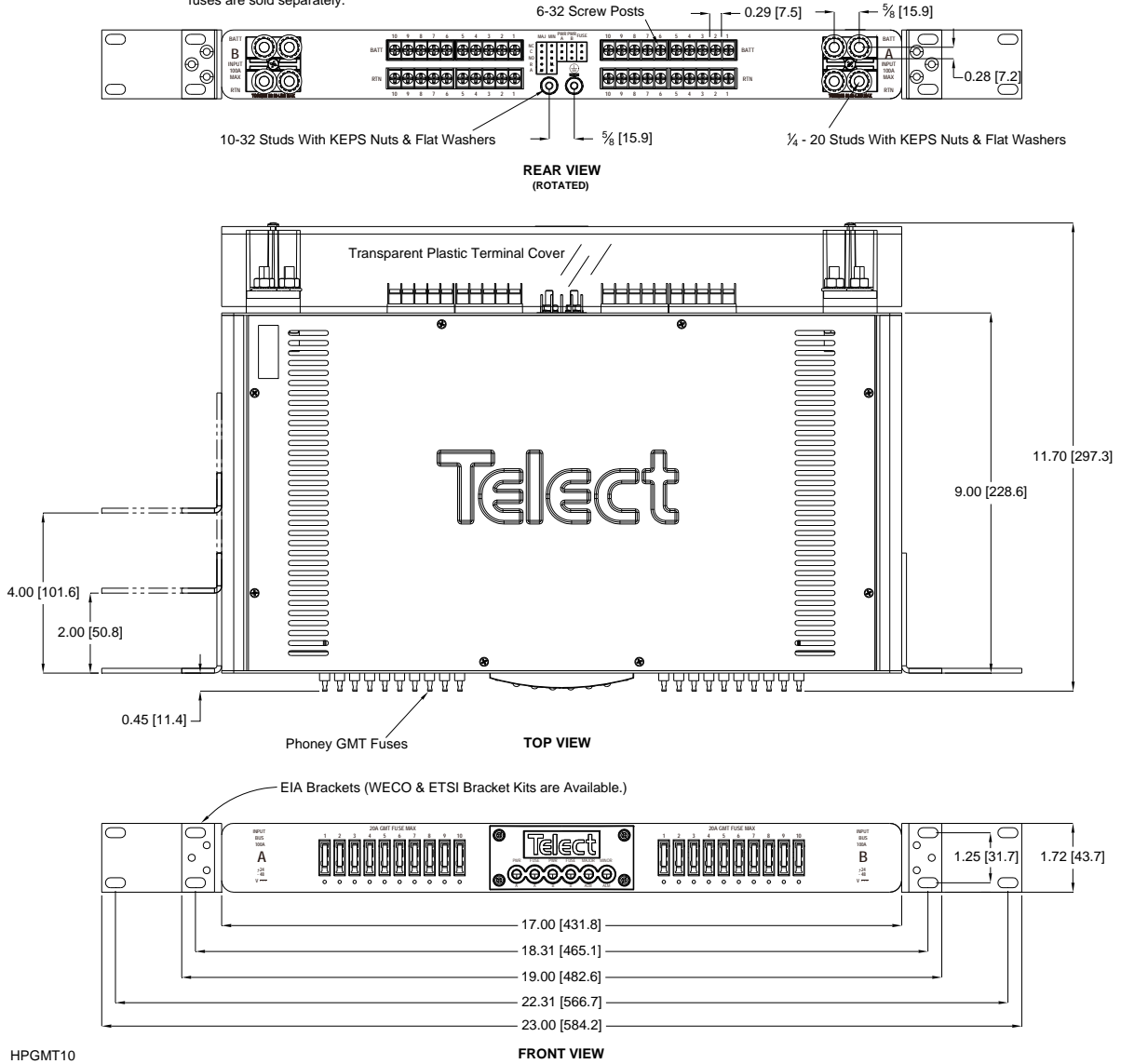


Figure 16 - HPGMT10
 (Typical Dimensions also for GMT10, HPGMT10S, HPGMT15, HPGMT20S, & HPGMT30S)

NOTES: 1. All dimensions are in in. [mm].
 2. Panel includes phoney fuses. Actual fuses are sold separately.

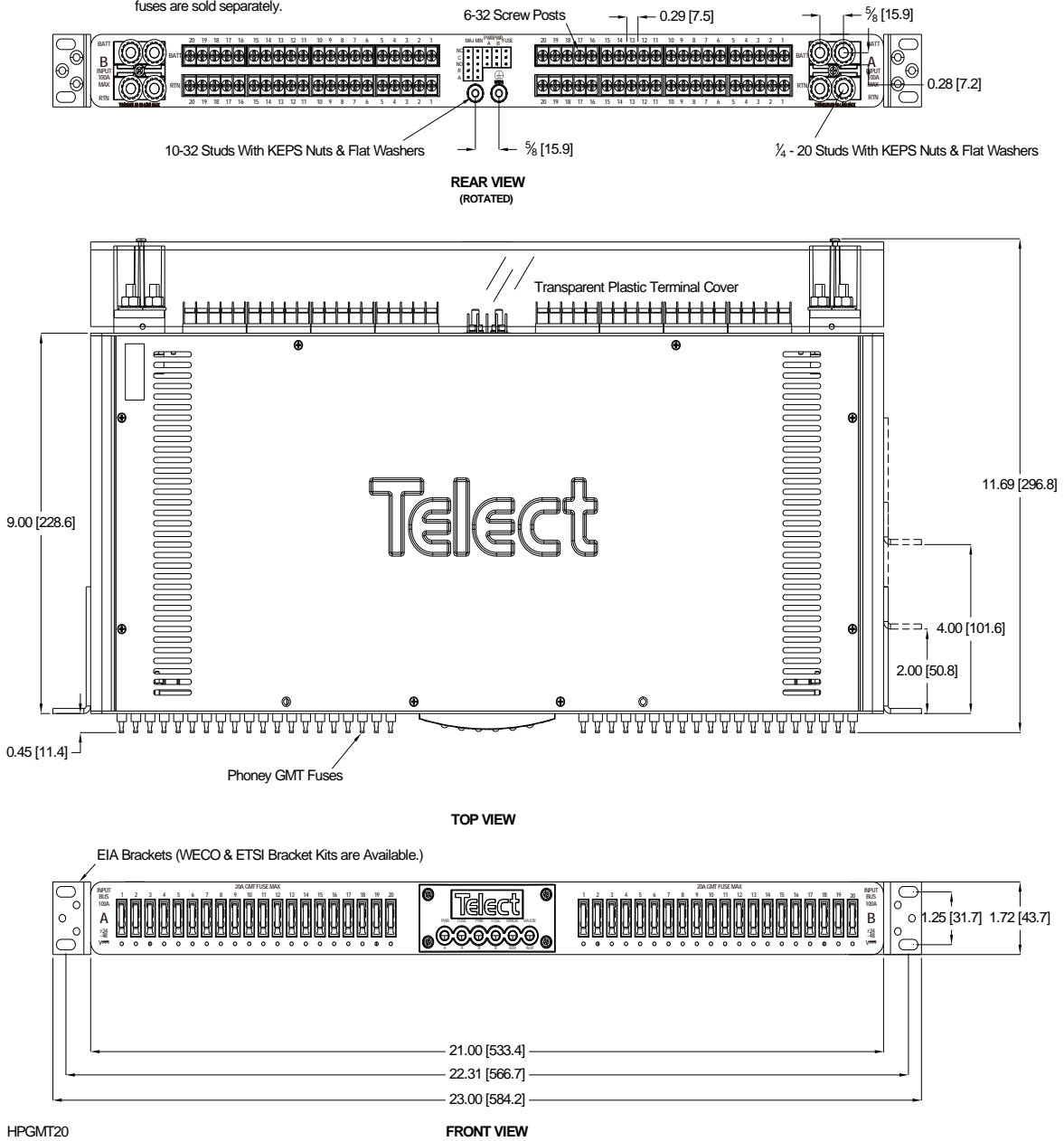


Figure 17 - HPGMT10FA

- NOTES: 1. All dimensions are in in. [mm].
 2. Panel includes phoney fuses. Actual fuses are sold separately.

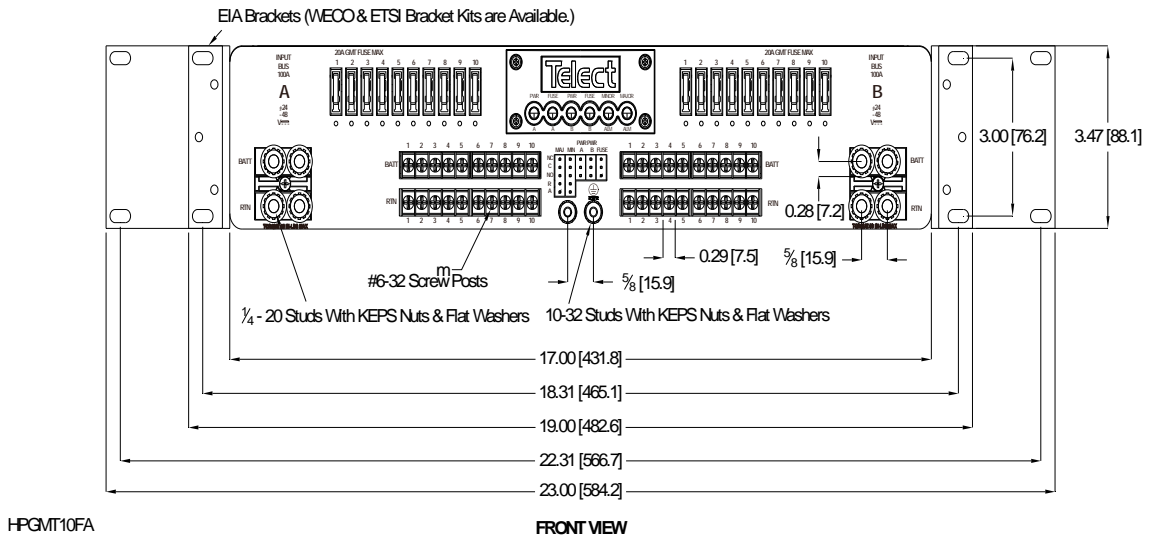
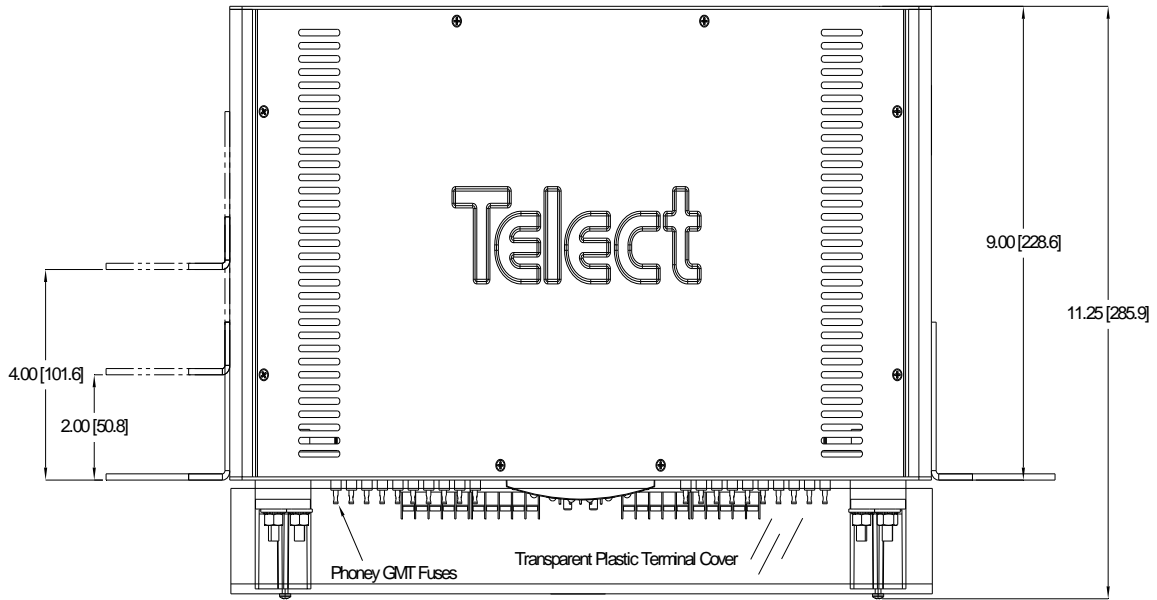
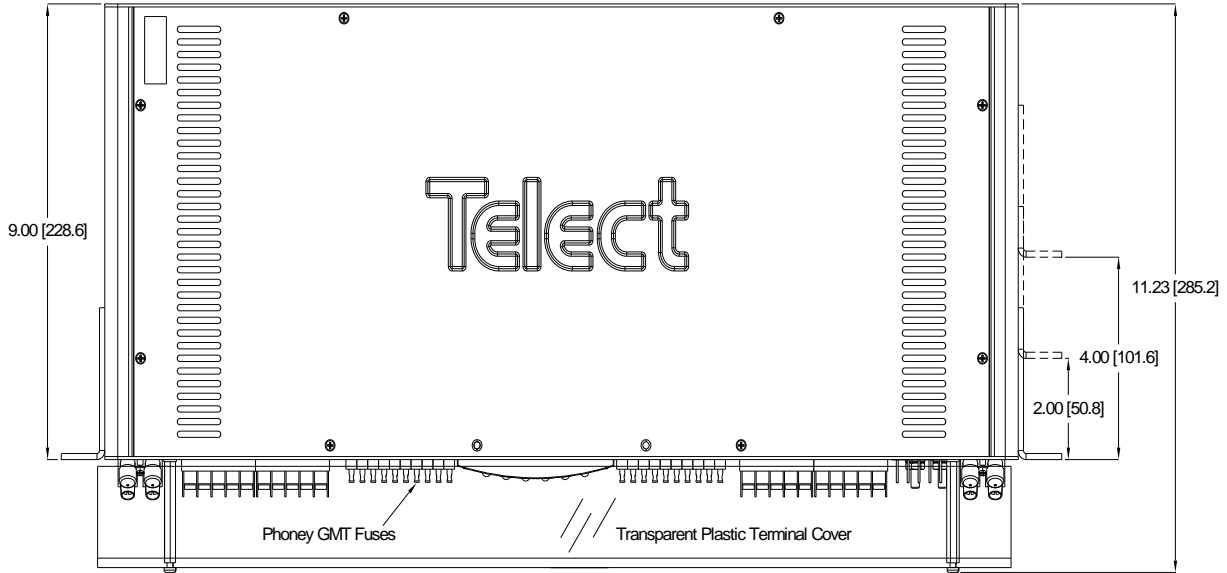
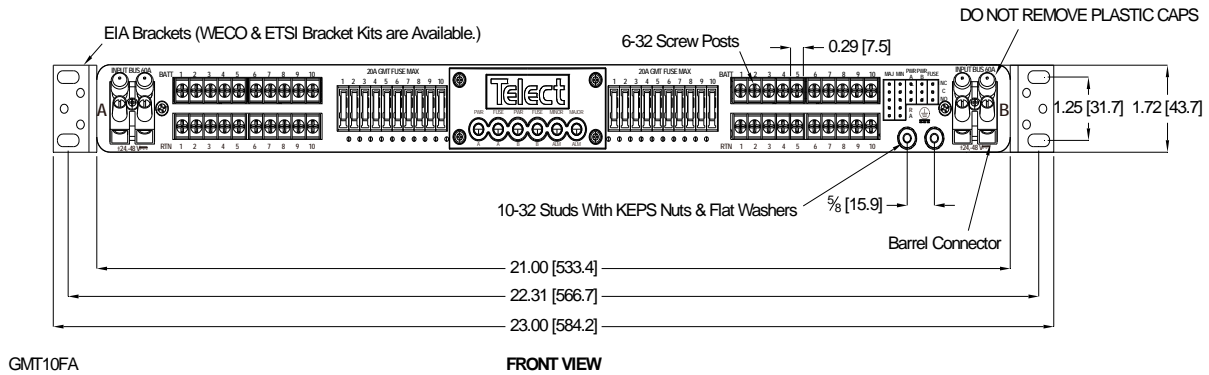


Figure 18 - HPGMT10FA

- NOTES: 1. All dimensions are in in. [mm].
 2. Panel includes phoney fuses. Actual fuses are sold separately.



TOP VIEW



FRONT VIEW

Figure 19 - GMT10FA