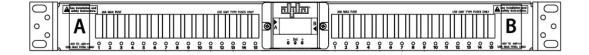


GMT 125 Series[™] - 15A/15B 1RU Fuse Panel For Telecom Broadband Technical Manual

Effective: January 2020



Safety Notes

Alpha Technologies Services, Inc. considers customer safety and satisfaction its most important priority. To reduce the risk of injury or death and to ensure continual safe operation of this product, certain information is presented differently in this manual. Alpha® tries to adhere to ANSI Z535 and encourages special attention and care to information presented in the following manner:



WARNING! GENERAL HAZARD

GENERAL HAZARD WARNING provides safety information to PREVENT INJURY OR DEATH to the technician or user.



WARNING! ELECTRICAL HAZARD

ELECTRICAL HAZARD WARNING provides electrical safety information to PREVENT INJURY OR DEATH to the technician or user.



WARNING! FUMES HAZARD

FUMES HAZARD WARNING provides fumes safety information to PREVENT INJURY OR DEATH to the technician or user.



WARNING! FIRE HAZARD

FIRE HAZARD WARNING provides flammability safety information to PREVENT INJURY OR DEATH to the technician or user.

There may be multiple warnings associated with the call out. Example:





WARNING! ELECTRICAL & FIRE HAZARD

This WARNING provides safety information for both Electrical AND Fire Hazards



CAUTION!

CAUTION provides safety information intended to PREVENT DAMAGE to material or equipment.



NOTICE:

NOTICE provides additional information to help complete a specific task or procedure.

ATTENTION:

ATTENTION provides specific regulatory/code requirements that may affect the placement of equipment and /or installation procedures.

The following sections contain important safety information that must be followed during the installation and maintenance of the equipment and batteries. Read all of the instructions before installing or operating the equipment, and save this manual for future reference.

GMT 125 Series[™] - 15A/15B

1RU Fuse Panel For Telecom Broadband

Technical Manual

C048-783-30 R01, Rev. B

Effective: January 2020

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Disclaimer

Images contained in this manual are for illustrative purposes only. These images may not match your installation. Operator is cautioned to review the drawings and illustrations contained in this manual before proceeding. If there are questions regarding the safe operation of this powering system, please contact Alpha Technologies Services, Inc. or your nearest Alpha representative.

Alpha® shall not be held liable for any damage or injury involving its enclosures, power supplies, generators, batteries or other hardware if used or operated in any manner or subject to any condition not consistent with its intended purpose or is installed or operated in an unapproved manner or improperly maintained.

1 800 322 5742

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1.0 Purpose and Applicability

The purpose of this document is to detail the installation and operation instructions for the GMT 125 Series[™] - 15/15 fuse panel.

1.1 Product Model

This document applies to the following models of the Alpha GMT 125 Series - 15/15 fuse panel:

Table 1. GMT 125 - 15/15 fuse panel configurations

PART NUMBER	DESCRIPTION	INPUTS	OUTPUTS	MONITORING	COLOR
C016-2050-10	GMT 125 - 15/15 Fuse Panel; -48VDC; 15A/15B GMT Fuse Positions	Dual-Input	Terminal Block	LED Controller	White
C016-2051-10	GMT 125 - 15/15 Fuse Panel; -48VDC; 15A/15B GMT Fuse Positions	Dual-Input	Connectorized	LED Controller	White
C016-2052-10	GMT 125 - 15/15 Fuse Panel; -48VDC; 15A/15B GMT Fuse Positions	Dual-Input	Terminal Block	Meter Module	White
C016-2053-10	GMT 125 - 15/15 Fuse Panel; -48VDC; 15A/15B GMT Fuse Positions	Dual-Input	Connectorized	Meter Module	White
C016-2106-10	GMT 125 - 15/15 Fuse Panel; -48VDC; 15A/15B GMT Fuse Positions; Per Channel Current Monitoring; Ethernet	Dual-Input	Terminal Block	Meter Module (Advanced)	White
C016-2102-10	GMT 125 - 15/15 Fuse Panel; -48VDC; 15A/15B GMT Fuse Positions; Per Channel Current Monitoring; Ethernet	Dual-Input	Connectorized	Meter Module (Advanced)	White

2.0 Theory of Operation

2.1 Introduction

2.1.1 GMT 125 - 15/15

The GMT 125 Series - 15/15 product family consists of a dual-input 15A/15B GMT fuse position, 1RU panel with optional connectorized outputs and meter module. GMT fuses are available for this panel in ratings starting with 1/64 ampere up to 20 ampere rating.

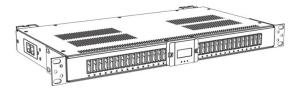


Figure 1. GMT 125 -15/15

2.2 Features

- GMT fuse positions: 30; each available up to 20A max
- Rack mounting: 19 in. or 23 in. via reversible rack mount ears
- Mounting offset: Front-flush, mid-mount forward, mid-mount rearward
- · LED display or meter module
- Alarm Contacts: Form C dry contacts
- · Rear panel modular jack connections for alarm outputs
- Fuse distribution output terminals or positive latching connectorized output connections

3.0 Unpacking and Inspection

The Alpha® GMT 125 Series - 15/15 fuse panel was carefully packaged at the factory to withstand the normal rigors of shipping. However, you should carefully inspect the box and contents to confirm that no damage has occurred in transit. Most shipping carriers require notification of shipping damage within twenty-four hours of delivery, and it is the responsibility of the recipient to inspect the shipment immediately upon receipt.

3.1 Package Contents

Included with your product are the following items:

- GMT 125 Series 15/15 Fuse Panel
- · Mounting hardware kit with necessary screws and washers
- Cable lacing bar (models with connectorized outputs only)

4.0 Installation

4.1 Installation Preparation

When selecting an installation location, ensure that all of the following conditions are met before proceeding.

4.1.1 Elevated Operating Ambient Temperature

If you install the panel in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, take care to install the equipment in an environment compatible with the maximum ambient temperature (TMA) specified in Section 6.

4.1.2 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.

4.1.3 Mechanical Loading

Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

4.1.4 Circuit Overloading

Give consideration 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. Use appropriate consideration for equipment nameplate ratings when addressing this concern.

4.1.5 Reliable Earthing

Maintain reliable earthing of rack-mounted equipment. Pay particular attention to supply connections other than direct connections to the branch circuit (e.g., use of power strips).

4.1.6 Disconnect Device

A readily accessible disconnect device must be incorporated in the building installation wiring.

4.2 Mounting

NOTICE:

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 TECHNICIANS.

- Step 1. Select the equipment rack location for installation of the fuse panel. Orient the rack mount ears appropriately for either 19 in. or 23 in. rack and select either the front-flush mount, midmount forward, or mid-mount rearward position to install the mounting ears (see Figure 2).
- **Step 2.** Attach the mounting ears with included 10-32 hardware (see Figure 3). Depending on the attachment point selected, the panel will either be front-flush, mid-mount forward, or midmount rearward in the rack.
- **Step 3.** Secure panel to equipment rack by tightening the included 12-24 hardware into the mounting ears.

4.2.1 Lacing Bar (Connectorized Output Models Only)

GMT 125 15/15 models with connectorized outputs include an output cable lacing bar for clean cable management. This lacing bar does not come preinstalled from the factory.

Step 1. Attach the output cable lacing bar by tightening the two 10-32 phillips-head screws into the threaded holes located on the rear of the panel (see Figure 4).

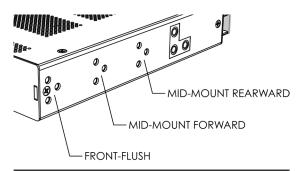


Figure 2. Mounting ear positions

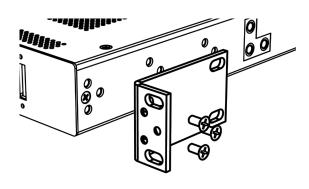


Figure 3. Mounting ears (front-flush position shown)

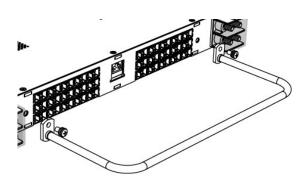


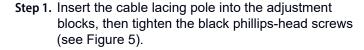
Figure 4. Lacing bar (connectorized models only)

4.2.2 Optional Rear Rack Support Kit

(C750-278-10 Kit; Connectorized Output Models Only)

An optional rear rack support kit is available for GMT 125 15/15 models with connectorized outputs. This kit provides additional support to the rear of the panel by attaching to the rear of the equipment rack. The adjustable rails and lacing bar allow for flexible and clean cable management.

NOTE: This kit can not be used in combination with the standard cable lacing bar that is included with the GMT 125 fuse panel.



- **Step 2.** Insert the two straight panel extension poles into the bottom holes of the adjustment blocks (see Figure 6).
- **Step 3.** Insert the two rear rack mounting poles into the top holes of the adjustment blocks (see Figure 7).
- Step 4. Secure the base of the two straight panel extension poles from Step 2 to the threaded holes found on the rear of the GMT 125 fuse panel by tightening the hex-head hardware (see Figure 8).
- **Step 5.** Secure the rear rack mount ears to the equipment rack by tightening the 1/4 phillips-head screws (see Figure 9).
- **Step 6.** Secure the cable lacing bar into place by tightening the thumbscrews found on the top of the adjustment blocks (see Figure 10).

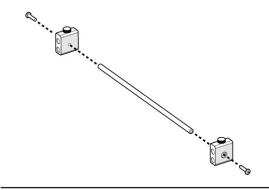


Figure 5. Cable lacing bar

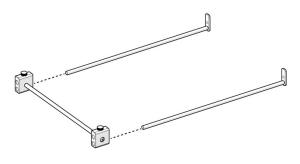


Figure 6. Panel extension poles

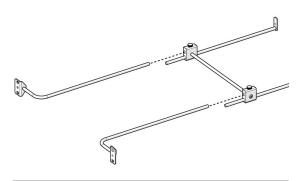


Figure 7. Rear rack mounting poles

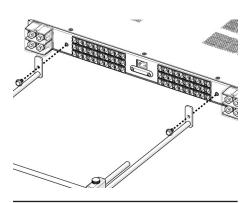


Figure 8. Mount to chassis

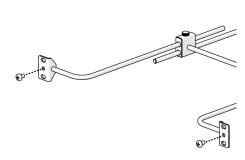


Figure 9. Rear rack mount ears

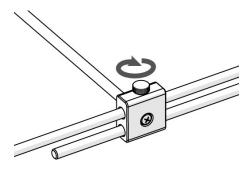


Figure 10. Thumbscrew

4.3 Chassis Ground



DO NOT ENERGIZE THE PANEL BEFORE CHASSIS GROUND IS CONNECTED.

The chassis ground is located in the side of the panel. A two hole lug landing position is provided. See table below for termination information. A minimum of #6 AWG chassis ground cable is required.

IMPORTANT: Grounding hardware not included. A properly-sized grounding conductor must be installed per NEC (250.122).

Table 2. Chassis Ground Termination Specifications

TERMINATION TYPE		CENTER TO CENTER	RECOMMENDED TORQUE VALUE
Threaded Insert	1/4 in.	5/8 in.	100 in·lbs

Step 1. Secure the ground cable to the chassis by tightening 1/4 in. hardware (see Figure 11).

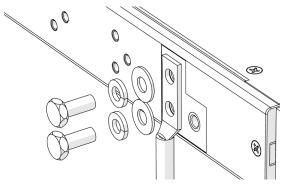


Figure 11. Chassis ground

4.4 Input Connections



WARNING! ELECTRICAL HAZARD

INPUTS MUST BE PROTECTED BY A LISTED CIRCUIT BREAKER OR BRANCH RATED FUSE. THE CIRCUIT BREAKER OR FUSE MUST BE RATED 125A MAX. MULTIPLE POWER SOURCES ARE PRESENT, ENSURE ALL INPUT POWER FEEDS ARE NOT ENERGIZED BEFORE INSTALLING THEM. ELECTRICAL INSTALLATION SHOULD ONLY BE PERFORMED BY QUALIFIED PERSONNEL WITH PROPER TOOLS AND PROTECTIVE SAFETY EQUIPMENT.



NOTICE:

MAKE SURE THAT ALL FEEDER CABLES HAVE HEAT SHRINK APPLIED PRIOR TO TERMINATION, AND THAT NO-OXIDE COMPOUND IS APPLIED TO ALL COPPER-TO-COPPER CONNECTIONS. SEE APPENDIX B ON PAGE 21 FOR COMPRESSION LUG SPECIFICATIONS, TOOLING, AND ORDERING INFORMATION.

Table 3. Input Termination Specifications

TERMINATION	HOLE/	CENTER	RECOMMENDED
TYPE	STUD SIZE	TO CENTER	TORQUE VALUE
Threaded Stud	1/4 in.	5/8 in.	50 in·lbs

- **Step 1.** Remove the plastic input safety covers by pulling away from panel (see Figure 12).
- **Step 2.** Install the RTN cables/lugs to the RTN input studs located on the rear of the panel (see Figure 13). Ensure all that hardware is tightened.
- **Step 3.** Install the HOT input cables/lugs to the HOT input studs located on the rear of the panel (see Figure 14). Ensure that all hardware is tightened.
- Step 4. Reinstall the input safety covers from Step 1.



WARNING! ELECTRICAL HAZARD

FAILURE TO REINSTALL THE INPUT SAFETY COVERS WILL CREATE AN ELECTRICAL HAZARD.

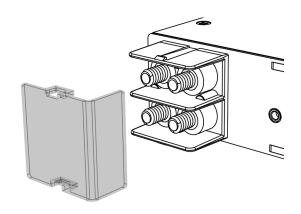


Figure 12. Input safety covers

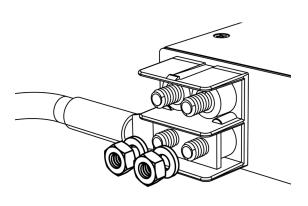


Figure 13. RTN input landing

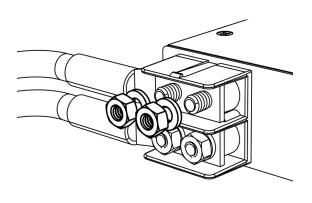


Figure 14. HOT input landing

4.5 Output Connections



CAUTION!

DO NOT PERFORM THIS STEP ON CIRCUITS WITH FUSES INSTALLED. ENSURE NO POWER IS PRESENT ON THE CIRCUIT BEING WIRED BEFORE PROCEEDING. MAKE SURE THAT ALL CABLES HAVE INSULATED TERMINALS OR HEAT SHRINK APPLIED PRIOR TO TERMINATION, AND THAT NO-OXIDE COMPOUND IS APPLIED TO ALL COPPER-TO-COPPER CONNECTIONS.



NOTICE:

SEE APPENDIX E ON PAGE 20 FOR TERMINAL SPECIFICATION, TOOLING, AND ORDERING INFORMATION.

4.5.1 Terminal Block Output Versions

Table 4. Output Termination Specifications

TERMINATION TYPE	HOLE/ STUD SIZE	CENTER TO CENTER	RECOMMENDED TORQUE VALUE
Screw Terminal	M3 (#6)	1/4 n.	5 in·lbs

Refer to the front of the panel for the channel mapping card. On the rear of the panel, locate the "stair-step" terminal block for the fused outputs. Note that each output terminal is numbered from right to left to correspond with the fuse holder on the front panel. The bottom terminals in the terminal block are connected to the return bus bar for each input bus. The top row of terminals are the fused outputs for each fuse holder as numbered.

- Step 1. Connect the wires to the equipment loads to be fed by the panel fused outputs to these terminal block connections. The RTN (+) wire connects to the bottom terminal (see Figure 15) and the HOT (-) wire connects to the top terminal (see Figure 16) for each fuse position.
- Step 2. Use appropriate crimp spade or ring lugs on the wires that will be connected to the terminal block fused outputs. Ensure no stray wire strands short out to adjacent terminals, and route the wires in an organized fashion with cable ties or lacing twine down the equipment rack to the equipment loads.
- **Step 3.** Attach the included output safety cover by snapping it onto the pre-tightened mounting screws (see Figure 17).



WARNING! ELECTRICAL HAZARD

FAILURE TO REINSTALL THE INPUT SAFETY COVERS WILL CREATE AN ELECTRICAL HAZARD.

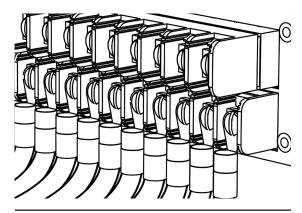


Figure 15. RTN output wires

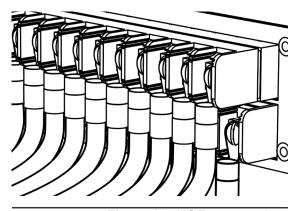


Figure 16. HOT output wires

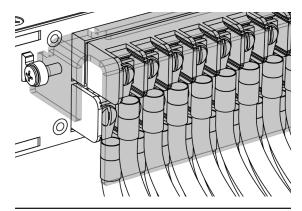


Figure 17. Output safety cover

4.5.2 Connectorized Output Versions

There are 30 positive latching DC connector positions for the output circuits found on the GMT 125 -15/15 (15 per side). Cable whips are available in a variety of lengths and wire gauges (refer to Appendix E on Page 22 for more information).

Step 1. Insert the DC connectors into the outputs until they click. The connectors are keyed to ensure correct polarity (see Figure

4.6 Installing Fuses



NOTICE:

USE BUSSMANN GMT TYPE FUSES ONLY. FUSES MUST CARRY A 450A INTERRUPT RATING.

Step 1. Ensure that connected loads are in the off position, then insert a fuse of sufficient ampacity into the position to be fed. Turn on the connected load.

4.7 Alarm Installation



NOTICE:

WHEN DAISY CHAINING, THE ALARM MUST BE MONITORED NORMALLY OPEN.

The GMT 125 - 15/15 fuse panel has Form-C dry alarm contacts for remote alarm monitoring. If alarm monitoring is required, (2) 8p8c (RJ-45) modular jacks are provided for alarm connections. The (2) jacks support easy daisy chaining of panels.

The 8p8c modular jacks are located on the side of the panel. Refer to mechanical drawings found in Appendix A for more details.

- Step 1. Plug in a UTP cable with a TIA/EIA T568B termination into the alarm jack (see Figure 19). Refer to Table 5 for termination pinout information.
- Step 2. Connect the cable to the site alarm monitoring system.
- Step 3. If daisy chaining is required, connect a UTP cable with TIA/ EIA T568B termination into the second jack and connect the other end to the next panel in the chain. Repeat this process until all panels are connected.

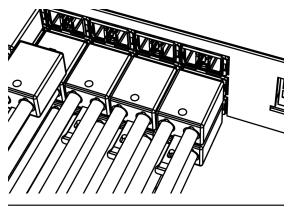


Figure 18. Connectorized output cables

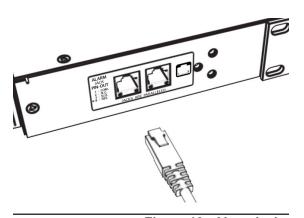


Figure 19. Alarm jacks

Table 5. Alarm Contact Pinout

PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
Major COM		Major NO	Reserved	Reserved	Reserved	Reserved	Reserved

4.8 Installing the Network Cable

(C016-2102-10 and C016-2106-10 Models Only)

An ethernet module is available on models with per-channel current monitoring. If remote monitoring over the network is required, complete the following steps to connect the Ethernet module with embedded web server.

For initial configuration, it is recommended to use a crossover Cat 5/5e/6 UTP cable to connect a laptop directly to the Ethernet port of the GMT panel. If the laptop is configured for Auto MDI-X, a straight-through cable may be used.

- Step 1. Connect a Cat 5/5e/6 UTP Ethernet cable from the local network to the Ethernet port on the rear of the panel (see Figure 20). Refer to "Appendix A: Mechanical Drawings" on Page 18 for exact location. Use a TIA/EIA T-568B pinout for the network connection.
- **Step 2.** For information on configuring the web server, see "5.2 Review System Status via the Embedded Web server" on Page 14.

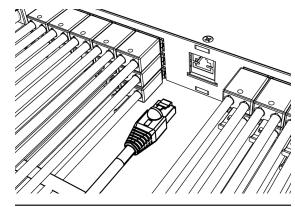


Figure 20. Ethernet module

4.9 Installation Checklist

- Rack mount ears configured for 19/23 in.
 - · Ears mounted to panel and rack securely
- Input power cables/lug and return cables/lugs securely bolted/ connected to rear of panel
- Heat shrink installed on cables
- Fuse fail alarm contacts wired to remote monitoring device (if required)
- Fused outputs wired with correct polarity, crimp lugs, wire lacing, or cable tie routing to equipment loads
- · Output connections secured
- Fuses sized as required for each load
- All safety covers attached

5.0 Operation

5.1 Meter Module

The GMT 125 - 15/15 fuse panel is available with an LCD meter module that displays bus current, total bus load, and an exclamation mark indication when a major alarm occurs.

Screen contrast can be adjusted from 0-100 (increments of 5).

5.2 Review System Status via the Embedded Web Server

This section applies to the GMT 125 - 15/15 products with the optional embedded web server installed. If a panel does not have an Ethernet web server but you would like to add one, or if you are unsure if this option is installed on your panel, contact Alpha at support @ 1 800 863 3364.

The optional embedded Ethernet module provides remote monitoring via IP-based Ethernet networks and a web browser. To view the system status, you will need to connect the Ethernet port on the rear of your GMT 125 - 15/15 fuse panel to your network. See "4.8 Installing the Network Cable" on Page 13 for information on installing the network cable.

By default, the Ethernet module is configured from the factory with a static IP address and network settings, as defined below.

5.2.1 Default Static Network Settings

Use these default settings to set up a local network to communicate with the embedded web server:

IPV4 Address: 192.168.123.123
Subnet Mask: 255.255.255.0
Default Gateway: 192.168.123.1
Primary DNS: 192.168.123.1
Secondary DNS: 8.8.8.8

Once you establish a connection to the embedded Ethernet module, use the following credentials to gain access to the protected data and administrative pages:

Username: root Password: password

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5.2.2 Real-time Status

Upon loading the GMT 125 - 15/15 web server, the real-time status will be displayed.

Site Information

User can configure these settings under Administration --> Site Settings.

- Site name
- Site location

Bus Detail

- Voltage
- Feeder fuse size
- Load
- Alarm threshold %
- · Load % based on feeder fuse size

Temperature Sensor

Controller temperature sensors in fahrenheit and celsius

Channel Detail

- · Channel no.
- Load per channel
- · Ampacity per channel
- · Load % per channel

Panel Settings:

 0 = fuse not installed will turn off current monitoring for that channel, even if there is a load on it.

5.2.3 Administration

When accessing the web server for first time, it is necessary to configure the administration settings. Click on the "Administration" tab to access these settings.

Notification Settings

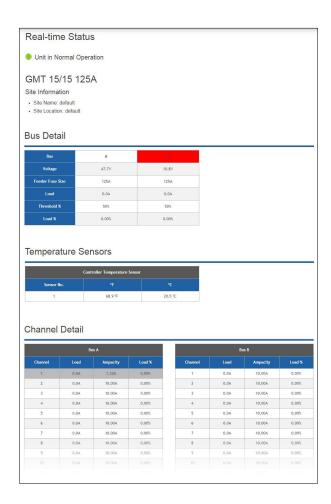
SNMP Alert Settings

- Enable/disable fuse fail alerting
- · Enable/disable threshold alerting
- Enable SNMP trap notification

SNMP Settings

Configure SNMP Settings

- · SNMP trap source address
- SNMP trap destination address







Site Settings

Configure Site Settings

- Site name
- Site location

Panel Settings

Configure Panel Settings

- Global alarm threshold %
 - 40-100
- Voltage Calibration Offset
 - Offset can be applied in increments of +/- 3.0V to raise or lower the displayed A/B bus voltages. Any offset greater than +/- 3.0V is invalid and will not be saved.
- Bus A and B fuse settings (ampacity per channel)
 - 0.00-20.00 (0= fuse not installed)

Network Settings

Network Configuration Settings

- IP v4 settings
- IP v6 settings

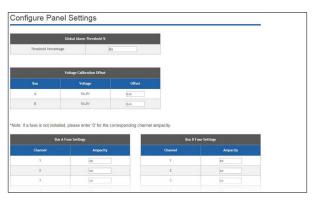
Upload Firmware

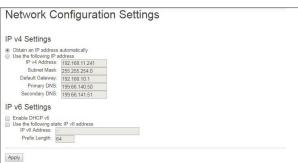
Follow the instructions on this page to upgrade the firmware on your embedded ethernet module.

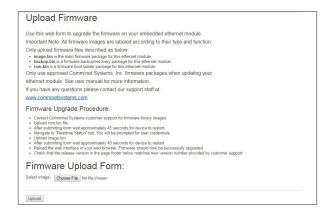
Reboot Device

This page allows the user to reboot the embedded ethernet module while not disrupting normal operation of power equipment.









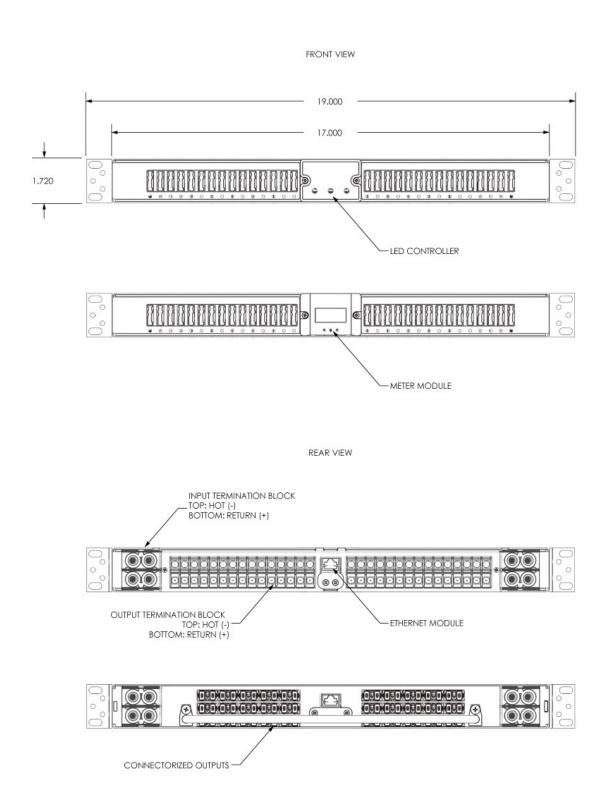


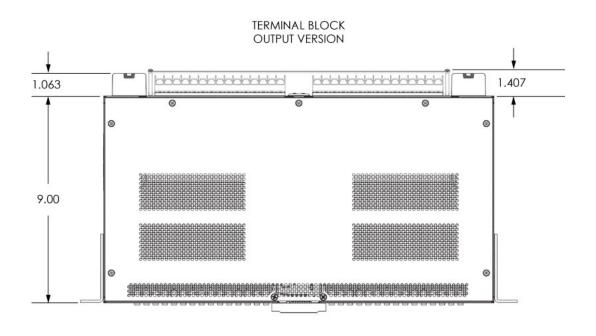
6.0 Product Specifications

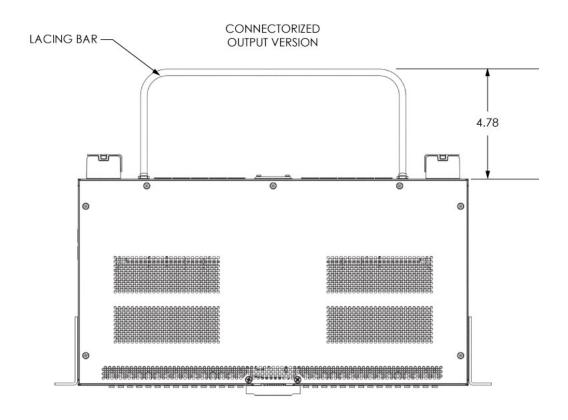
Table 6. GMT 125 - 15/15 Model Specifications

<u> </u>	
ALL MODELS	
Type of Input	Dual Input (A/B)
Circuits	30
Input Voltage (+/- 0%)	-42 to -60V DC
Input Current	125A Max
Maximum Input Interruption Device	150A
Maximum Fuse Size	20A GMT
Maximum Per Circuit Current	20A
Maximum Continuous Load on 15-20A GMT Fuses	70% Fuse Rating
Maximum Continuous Load on <15A GMT Fuses	80% Fuse Rating
Max Operating Altitude	2000 m
Max Ambient Temperature	45° C
Width	17 in.
Height	1.75 in.
Depth (Not Including Lacing Bar Kits)	11 in.
Weight	8.5 lbs.
UL File Number	E473904
UL Standard	ANSI/UL 60950-1

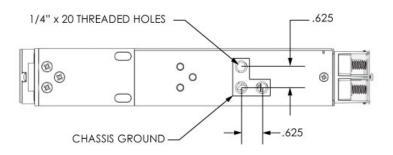
Appendix A: Mechanical Drawings

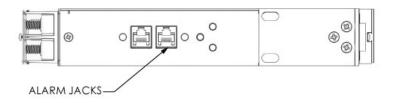




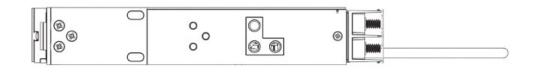


TERMINAL BLOCK OUTPUT VERSION





CONNECTORIZED OUTPUT VERSION





Appendix B: Accessories

Table 7. Panel Accessories

PART NUMBER	DESCRIPTION
C750-278-10	Rear Rack Mounting Kit; GMT 125

Appendix C: Supported Lugs for Termination

Table 8. Input Connections

WIRE GAUGE SUPPORTED	ALPHA PART NUMBER	MANUFACTURER	MANUFACTURER PART NUMBER	CRIMP DIE REQUIRED
#2 AWG	C538-173-10	Burndy	YAV2CL2NT14FX	Burndy U2CRT, W2CVT, W2CRT, X2CRT
#2 AWG (90 degree)	C538-275-10	Burndy	YAV2CL2NT14FX90	Burndy U2CRT, W2CVT, W2CRT, X2CRT
1/0	C538-260-10	Burndy	YAZV252NT14FX	Burndy U25RT, W25VT, W25RT, X25RT
1/0 (90 degree)	C538-289-10	Burndy	YAV25L2NT14FX90	Burndy U25RT, W25VT, W25RT, X25RT

Table 9. Ground Lug Information

WIRE GAUGE SUPPORTED	ALPHA PART NUMBER	MANUFACTURER	MANUFACTURER PART NUMBER	CRIMP DIE REQUIRED
#6 AWG	C538-094-10	Burndy	YAZV6C2TC14FX	Burndy U5CRT, W5CRT, W5CVT, X5CRT, Y1MRTC

Appendix D: Supported Fuses

Table 10. Supported GMT Fuses

PART NUMBER	DESCRIPTION
C460-014-10	GMT Fuse ¼A; 60VDC; violet flag
C460-042-10	GMT Fuse ½A; 60VDC; reg flag
C460-013-10	GMT Fuse 1A; 60VDC; gray flag
C460-026-10	GMT Fuse 2A; 60VDC; orange flag
C460-027-10	GMT Fuse 3A; 60VDC; blue flag
C460-028-10	GMT Fuse 4A; 60VDC; white/brown flag
C460-009-10	GMT Fuse 5A; 60VDC; green flag
C460-012-10	GMT Fuse 7.5A; 60VDC; black/white flag
C460-010-10	GMT Fuse 10A; 60VDC; red/white flag
C460-011-10	GMT Fuse 15A; 60VDC; red/blue flag
C460-041-10	GMT Fuse 20A; 60VDC; green/white flag

Appendix E: Output Connections

E.1 Output Connector Cable Whips (For Connectorized Models Only)

Note: All cable assemblies are unterminated unless otherwise specified.

Table 11. Output Connector Cable Whips

AWG	LENGTH	COLOR	PART NUMBER
#10	7'	Red/Black	C745-420-10
		Blue/Black	C745-422-10
		Red/Red Tracer	C745-437-10
		Blue/Blue Tracer	C745-433-10
	12'	Red/Black	C745-290-10
		Blue/Black	C745-424-10
		Red/Red Tracer	C745-438-10
		Blue/Blue Tracer	C745-434-10
#12	7'	Red/Black	C745-421-10
		Blue/Black	C745-425-10
		Red/Red Tracer	C745-298-10
		Blue/Blue Tracer	C745-299-10
	12'	Red/Black	C745-293-10
		Blue/Black	C745-294-10
		Red/Red Tracer	C745-197-10
		Blue/Blue Tracer	C745-198-10
#14	7'	Red/Black	C745-436-10
		Blue/Black	C745-427-10
		Red/Red Tracer	C745-432-10
		Blue/Blue Tracer	C745-435-10
	12'	Red/Black	C745-296-10
		Blue/Black	C745-429-10
		Red/Red Tracer	C745-227-10
		Blue/Blue Tracer	C745-228-10

E.2 Output Terminal Connections (For Terminal Block Models Only)

Table 12. Output Terminals

WIRE GAUGE SUPPORTED; TERMINAL TYPE	ALPHA PART NUMBER	MANUFACTURER	MANUFACTURER PART NUMBER	CRIMP DIE REQUIRED
#16-14 AWG; Ring Terminal	C538-068-10	TE Connectivity	34158	TE Connectivity 58433-3 with Die Assembly 58423-1
#10-12 AWG Ring Terminal	C538-280-10	TE Connectivity	329697	TE Connectivity 169400 with Die Assembly 169404
#16-14 AWG; Spade Terminal	C538-038-10	TE Connectivity	52955	TE Connectivity 58433-3 with Die Assembly 58423-1
#12-10 AWG; Spade Terminal	C538-119-10	TE Connectivity	52961	TE Connectivity 58433-3 with Die Assembly 58423-1



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