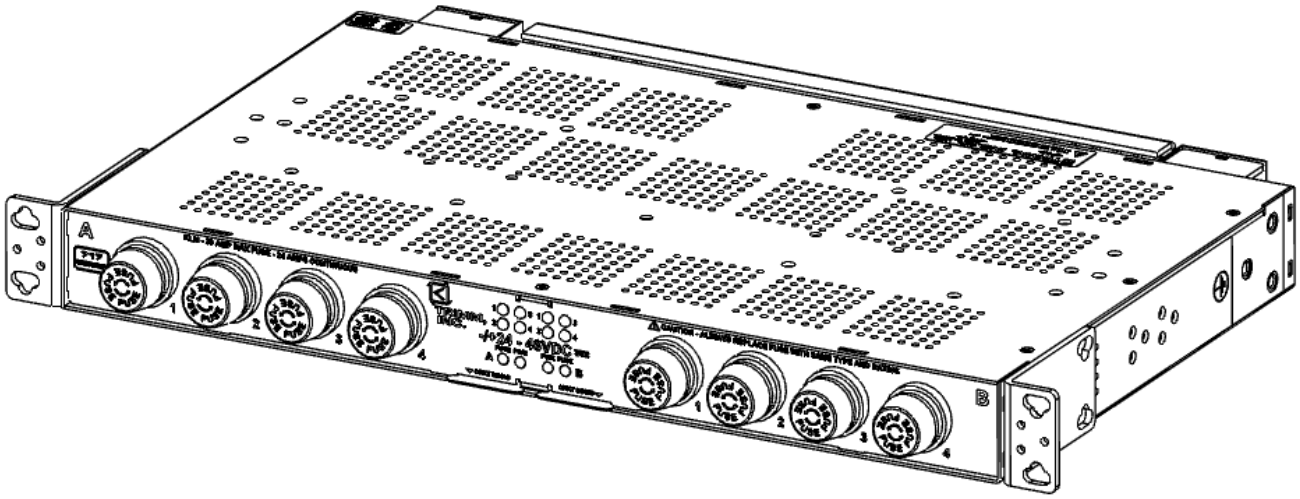
KLM Fuse Panel
Installation Guide

Document INS-717XXXXXXX

This manual covers the following part numbers-
Trimm *717XXXXXXX* Family



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Section 1- General Information

1.1 - Product Description

Trimm, Inc.'s KLM series of power distribution fuse panels provide protection for a variety of telecommunications equipment. The KLM fuse holder accepts a complete range of fuses from .10 to 30 Amps. This product is suitable for central office locations, network telecommunication facilities, data centers and outside plant enclosures. These KLM fuse panels may be installed in GR-3108 Class 3 environments[1].

[1]Salt for exposure requirements were not evaluated with these products.

1.2 - Inspection

Inspect the panel for any noticeable defects, missing parts (See "What's Included" below), or shipping damage. Please retain the original packaging in case you need to return the product to Trimm, Inc. Please notify Trimm, Inc. if any problems are found at 1-800-298-7466. Products shall not be returned to Trimm, Inc. without the proper Return Material Authorization (RMA) number.

1.3 - What's Included

This unit should be packaged with the following items. Please notify Trimm, Inc. if any of these items are not included so a replacement can be sent out right away.

- KLM fuse panel (verify part number from sticker on top of the unit.)
- 4 x #12-24 x ½" self-tapping mounting screws
- A single compression lug and associated fasteners (For Earthing/grounding connection only.)
- Input connector fasteners
- Installation guide packet

Section 2 – Before You Begin

⚠ WARNING

This panel shall be installed in a restricted access location by qualified service personnel only.

No field servicing is required on the unit.

All connections/methods shall meet all national/local electrical codes as well as company specific methods and procedures. Failure to do so may result in damage to the equipment, and or personal injury.

A readily accessible disconnect device must be incorporated into the supply wiring for this product. This disconnect device must be capable of interrupting the maximum available fault current determined by analysis for your system.

2.1 - Tools Required For Installation

Depending on the part number ordered the following tools may be needed to install this product.

- Multimeter
- Wire cutter/stripper
- No. 2 Phillips head torque screw driver
- Torque wrench with 7/16" socket
- Suitable listed crimp tooling for the field wiring terminals
- Cable ties or lacing cord
- Writing utensil or label maker for circuit designation
- Wire-Wrap tool for alarming connections (.045" square pins)

2.2 - Input Bus Amperage Rating

This family of products was designed to be used at their input bus amperage rating of 100 Amps, fed by a #2 AWG wire and protected by a 125 Amp maximum over current device.

2.3 - Fuse Sizing Information

KLM fuses shall be continuously operated at no more than 80% of their nominal current rating.

2.4 - Fuse Replacement Information

The correct fuses may be ordered from the table at the end of this document. See section 7

2.5 - Wiring Temperature Information

The wiring for this product shall be rated 90° C or better.

2.6 - General Notes on Terminal Connections

- Bare conductors should be coated with appropriate antioxidant compound before any connections are made.
- Use appropriate shrink tubing over any un-insulated terminal barrels.
- Ensure that the mating surface of both the terminals and their connection points are clean and free of paint.
- Appropriate antioxidant should be applied to the mating surfaces of all connections.
- Use only listed terminals and their associated listed crimp tooling.

2.7 - Operating Voltage Ranges

The following table lists the minimum and maximum voltage that this product has been designed to operate in.

Operating Voltage Information		
Nominal Voltage	Minimum Voltage	Maximum Voltage
5 VDC	4 VDC	7.5 VDC
12 VDC	10 VDC	15.0 VDC
24 VDC	19 VDC	28.3 VDC
48 VDC	40 VDC	60 VDC

2.8 - Battery Return Treatment

This product has been designed with the input return connections isolated from the chassis ground (Earthing) connection. This product is suitable for use with either DC-I or DC-C (Isolated or Common) battery return connection applications.

2.9 - Terminal Information

The following terminals or suitable equivalents may be used for connection to this product. This recommendation is based on the panel's bus amperage rating.

717XXXXXXX Family Suggested Field Wiring Terminal Specifications[1]							
Connection	Panel Bus Rating	Wire Gauge	Trimm Part Number [1]		Stud Size	Hole Spacing	Max. Width
			Standard Conductor	Flex Conductor			
Input (Compression Lug Type)	100 Amps	2 AWG	6500221221	6500221242	1/4"	5/8"	5/8"
Output (Barrier Strip Type)	Up to 10 AWG fork or ring terminal with a #6 stud (.312 max. tongue width)						
Chassis Ground	Terminal included with panel (compression lug)						
Remote Alarm	Set Screw or Wire Wrap (Non required)						

1-The above list is only a suggestion. Equivalent terminals may be used provided they are listed and crimped with the appropriately listed crimp tooling. Wire gauge is based on the maximum over current device rating

Section 3 – Rack Mounting

3.1 - Rack Mounting

Secure the panel to the rack using the self tapping screws provided. For a 23” rack or offset mounting applications, remove the screws securing the brackets to the chassis, orient the brackets to allow for optional mounting and re-torque the screws to 10 in-lbs. (1.1 Nm) max.

3.2 - Additional Rack Mounting Instructions

If this product is 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 unit’s maximum operating temperature. Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading. Wiring shall be secured in a manner that does not impose excessive stress on the mounting brackets.

Section 4 – Input and Grounding Cabling

⚠ WARNING

Before installation, verify that the input power disconnect device is turned “OFF”

4.1 - Chassis Grounding (Earthing)

This product is suitable for use in either a Common or Isolated (CBN or IBN) Bonding Network. This panel includes a compression lug for grounding. Crimp the ground wire to the terminal provided. Attach the wires to the panel using the supplied fasteners. Torque the fasteners to 24 in-lbs. (2.7 Nm). Attach other end of ground wire to the rack or other suitable grounding location. Reliable grounding of rack-mounted equipment should always be maintained (First On, Last Off).

4.2 - Input Wiring (Compression Lug Connection)

Remove the input covers and locate the flat washers and #1/4-20 locking nuts supplied with this panel. Crimp the battery and return wires to the proper terminals. Attach the wires to the panel using the supplied flat washers and locking nuts. Torque the fasteners to 40 in-lbs. (4.5 Nm).

4.3 - Power Verification Test

This test is to verify proper function of the panel prior to the connection of loads. Turn on the over current protection/disconnect device supplying power to the A side bus. Use a multi meter to verify that voltage and polarity are correct at the input connection. Verify that the PWR LED’s are illuminated “green” and FUSE ALARM LED’s are not illuminated. Verify that continuity is present between C and NC power alarm contacts. Install a failed fuse if possible and verify that the FUSE ALARM LED changes to “red”. With the failed fuse still in place verify that continuity is present between C and NO fuse alarm contacts. Repeat these steps for the B side bus if applicable.

Section 5 – Output and Alarm Cabling

⚠ WARNING

Before continuing installation, verify that the over current protection/disconnect device is turned “OFF”

Note about Voltage at the KLM Outputs with No Fuses Installed

By design the KLM fuse type does not include any blown fuse indication method to determine the fuses status. Thus, this type of fuse requires a current limited sensing voltage to detect the presence of a load attached to the panel and to determine if the fuse has blown or is simply not installed in the holder. This voltage is present at the output connections even without a fuse installed in the holder when the panel is energized.

Note about Dual Input Equipment fed from KLM Fuses

Proper alarm function requires that KLM fuse outputs are loaded. If your equipment receives power from 2 isolated feeds like the A and B buses of this fuse panel you may need to install a 1/4W 100k ohm or greater resistor across the KLM outputs (between the battery and return output connection of each filled position) for proper alarm function. Actual resistance value may differ depending on the device being powered. This practice is not always necessary depending on the circuitry of your equipment.

Note About KLM Remote Alarm Reset Functionality (Only for panel part number 7171101001 with ACO button on front of panel)

This panel is equipped with individual bus alarm cutoff switches that allow for the reset of local and remote alarm status of the panel. To reset alarms on the A or B bus simply press the ACO button on the front of the panel corresponding to the bus you’d like to reset. Individual position alarms may also be reset simply by replacing blown fuses in the positions indicating alarm.

ⓘ ALERT

Please note these barrier strip connections have been designed with a floating contact as a design feature on the output battery connections. This floating feature should not be deemed as a loose connection during installation and maintenance so long as the connections were initially tightened to the recommended torque as noted in this installation guide provided with the product.

5.1 –KLM Output Wiring (Barrier Strip Connections)

This panel accepts #10 to #22 AWG wire to feed into the battery and return connections. Strip the wires to the appropriate length and crimp to the terminals. Remove or loosen (for fork terminals) the screws for each fused position. Attach the terminal onto the corresponding position for both battery and return connections. Torque the screw to 10 in-lbs. (1.1 Nm).

5.2 - Alarm Wiring

The alarm connections use standard wire wrap pins or set screw connectors depending on the part number ordered. To connect the panel to an alarm system, attach the alarm wires to the appropriate pins (C-NC or C-NO) as outlined below.
Continuity at the fuse fail alarm connector is established at positions C and NC when all the fuses are good (not failed). Continuity is established at positions C and NO when any fuse has blown (failed).

If equipped with a power fail alarm, continuity is established at positions C and NC when the panel is energized or at C and NO when the panel is not energized or a loss of power for that bus has occurred.

Section 6 – Final Installation

6.1 - Fuse Installation

Orientate and install the correct fuse into its position. Record the protected equipment identification and location on the supplied designation card. To prevent the risk of fire and/or equipment damage, always replace a fuse with the same type and rating.

6.2 - Energizing the Panel

Once all steps have been completed above, and a final inspection of the installation has been completed, you may energize the fuse panel by switching the corresponding interrupt device to its “ON” position.

Section 7 – Fuse Ordering Information

KLM FUSES	
PART NUMBER	DESCRIPTION
0300268431	1/10 AMP
0300268432	1/8 AMP
0300268433	2/10 AMP
0300268434	1/4 AMP
0300268435	3/10 AMP
0300268436	1/2 AMP
0300268437	3/4 AMP
0300268401	1 AMP
0300268438	1-1/2 AMP
0300268402	2 AMP
0300268403	3 AMP
0300268404	4 AMP
0300268405	5 AMP
0300268406	6 AMP
0300268408	8 AMP
0300268410	10 AMP
0300268415	15 AMP
0300268420	20 AMP
0300268425	25 AMP
0300268430	30 AMP

Section 8 - Revision Record

Legend:	Type	R=Revision T=Typo	A=Addition N=New	D=Deletion V=Review

Revision	Date	Type	Section/Comments
A	08/28/09	N	New Document
B	05/20/19	R	Modified to reflect the operation of the new alarm board.