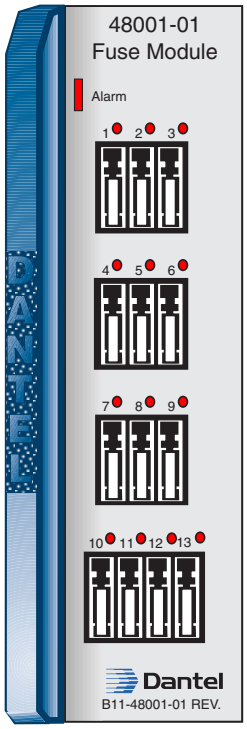
B11-48001-01
FUSE MODULE



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About this Practice:

This practice has been reissued to:

- Add B11 designation to all references of 48001-01.

Reissued Practices: Updated and new content can be identified by a banner in the right margin.

UPDATED

Issue date: October 1997

CAUTION

- Install or remove modules from the shelf only when the power is off. If you install a module in the shelf with the power on, the internal circuitry may suffer damage and the product warranty will be void.
- Remove and install circuit boards only in a static-safe environment (use antistatic wrist straps, smocks, footwear, etc.).
- Keep circuit boards in their antistatic bags when they are not in use.
- Do not ship or store circuit boards near strong electrostatic, electromagnetic, magnetic, or radioactive fields.
- For more complete information on electrostatic discharge safety precautions, refer to Bellcore™ Technical Reference # TR-NWT-000870.

ORDERING INFORMATION

NOTE: This section lists the different options available for this product. To order any of the available options, contact Dantel Inside Sales through our toll-free number, **1-800-432-6835.**

OPTION NUMBER	FEATURES
B11-48001-01	Fuse Module

GENERAL DESCRIPTION

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The B11-48001-01 Fuse Module provides 13 GMT indicating-type fuse circuits and a failure alarm circuit for fusing 400-type modules in an equipment shelf. The module fits into any 400-type or similar equipment housing and operates on -21 to -56 VDC input power. The front panel includes 13 indicating-type GMT fuses and an alarm LED.

CIRCUIT DESCRIPTION

The front panel includes 13 GMT-type fuses and an alarm LED. Fig. 1 shows an illustration of the functional schematic.

FUSES

There are two groups of fuses:

- F1 through F6
- F7 through F13

They can be fed independently or using the same battery input.

JP1 AND -BATTERY INPUTS

The module is equipped with a jumper (JP1). This jumper selects one of the following modes of operation:

- Single input.
- Redundant inputs.
- Two independent inputs.

Refer to Table A.

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CIRCUIT DESCRIPTION

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FIG. 1 - FUNCTIONAL SCHEMATIC, B11-48001-01 FUSE MODULE

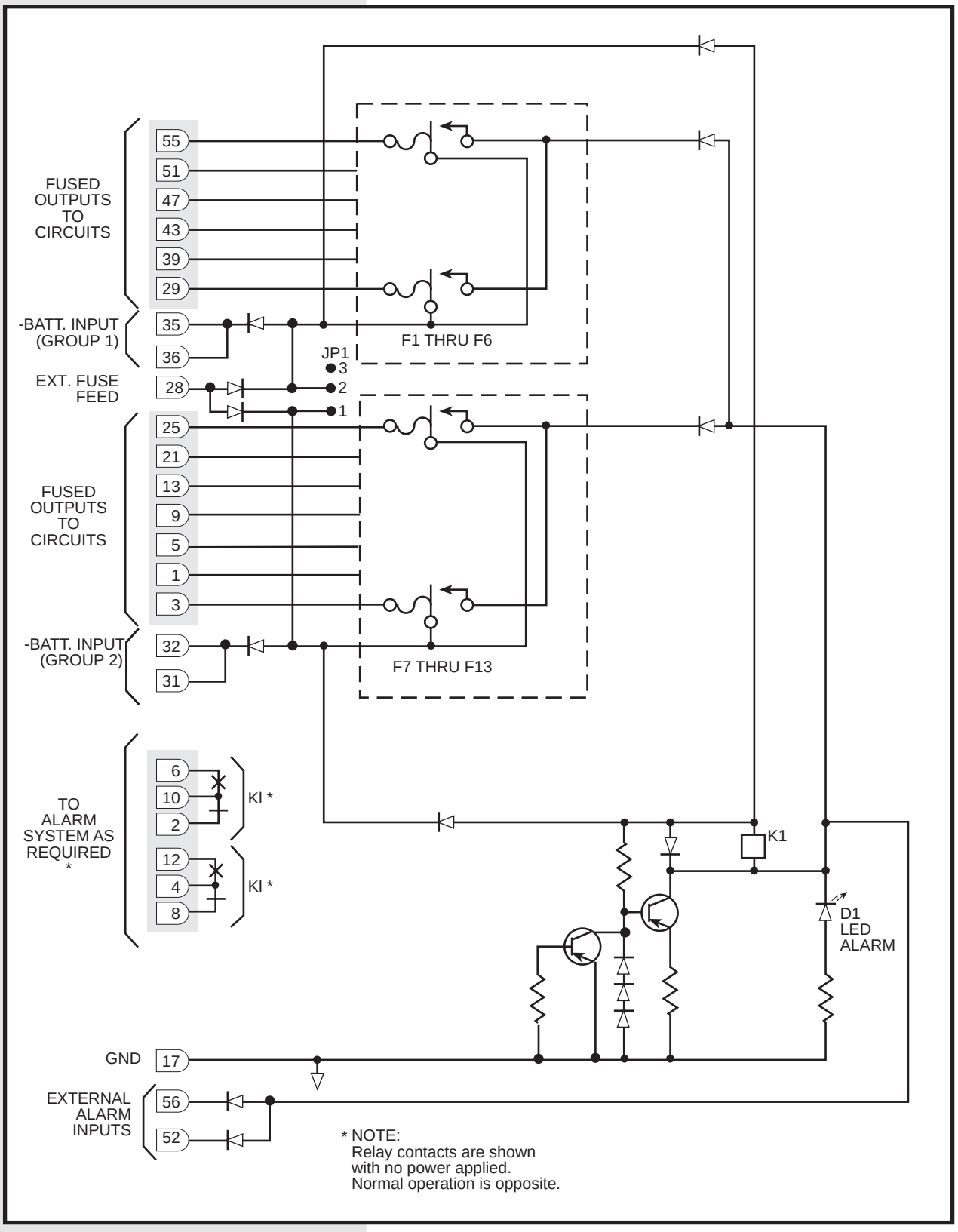

TABLE A - JP1 STRAP OPTIONS

POSITION	DESCRIPTION
Pins 1 & 2	Redundant or Single Input
Pins 2 & 3	Two Independent Inputs

JP1 strapped 1 & 2

- Single Input

  Connecting one power supply to pins 35 and/or 36 or 31 and/or 32 supplies power to both fuse groups.

- Redundant Inputs

  Connecting one power supply to pins 35 and/or 36 and a second power supply to pins 31 and/or 32 parallels both supplies to provide power to both fuse groups.

JP1 strapped 2 & 3

- 2 independent supplies

  Connecting one power supply to pins 35 and/or 36 provides power to fuse group 1 (fuses 1 through 6). Connecting a second power supply to pins 31 and/or 32 provides power to fuse group 2 (fuses 7 through 13).

CURRENT RATING

Each edge connector pin (35, 36, 31, and 32) is rated at 5 amps, maximum. If the equipment powered by each fuse group draws less than 5 amps, only one pin of each group is needed. Refer to Fig. 1. Use both inputs to each group if:

- The current draw for each group exceeds 5 amps.
- A single input is used to provide power to both fuse groups.

FAILURE ALARM CIRCUIT

The failure alarm circuit consists of a regulator transistor, relay K1, and an LED. The regulator transistor compensates for the battery voltage and prevents exceeding the voltage rating of the relay coil. The relay is normally activated. It is non-active only when the supply battery is lost or one of the fuses fails. When a fuse fails, negative battery is placed on both sides of the relay coil, no current flows through the coil, and the relay contacts return to normal. At the same time, current is provided to the front panel LED, lighting it.

CIRCUIT DESCRIPTION

Two sets of Form-C contacts activate external alarm circuits when the relay is not active. Two external alarm inputs at pins 52 & 56 allow the alarm circuit to be operated by an external contact to negative battery.

EXTERNAL FUSE FEED

Edge connector pin 28 is available for providing power to external equipment. -Battery supplied to pin 31, 32, 35, or 36 is routed directly to pin 28, bypassing any fuses.

INSTALLATION

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The actual installation of this module is simple. To install the B11-48001-01 Fuse Module, place it in the proper slot in the equipment shelf. However, several factors deserve attention before installation:

JP1 AND -BATTERY INPUTS

Refer to Fig. 2. The module is equipped with a jumper (JP1). This jumper selects one of the following modes of operation:

- Single input.
- Redundant inputs.
- Two independant inputs.

Refer to Table A, in the ***Circuit Description*** section.

JP1 strapped 1 & 2

- Single Input

  Connect one power supply to pins 35 and/or 36 or 31 and/or 32. That one power supply powers both fuse groups.

- Redundant Inputs

  Connect one power supply to pins 35 and/or 36. Connect a second power supply to pins 31 and/or 32. Both supplies provide power to both fuse groups.

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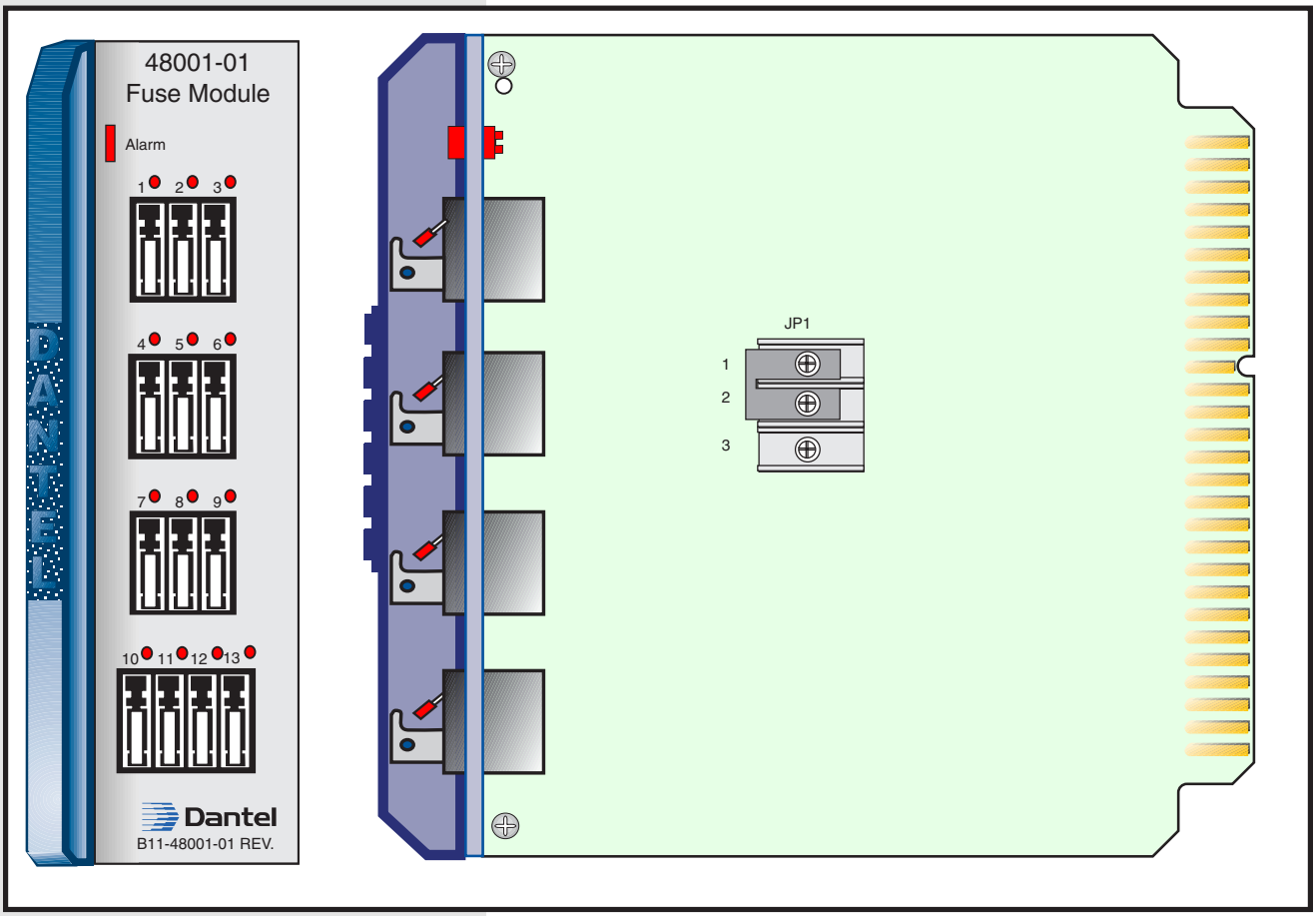
FIG. 2 - B11-48001 BOARD LAYOUT



JP1 strapped 2 & 3

- 2 independent supplies

Connect one power supply to pins 35 and/or 36. This provides power to fuse group 1 (fuses 1 through 6). Connect a second power supply to pins 31 and/or 32. This provides power to fuse group 2 (fuses 7 through 13).

EDGE CONNECTOR PINS

Normally, the 56-pin edge connector for the slot is prewired at the factory. If you are going to wire the connector, refer to Fig. 3 for module PC connector pin wiring assignments.

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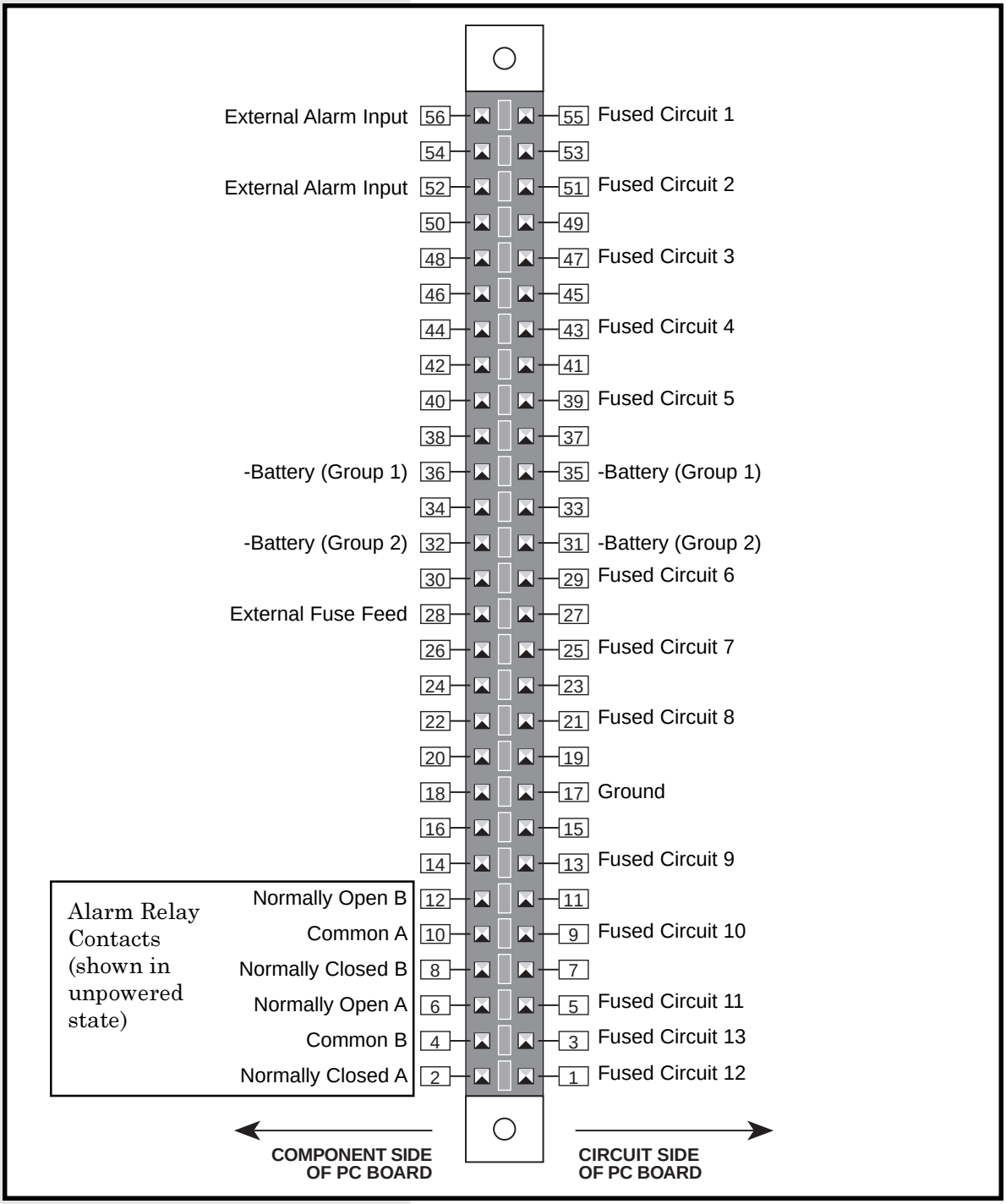
FIG. 3 - B11-48001 EDGE CONNECTOR PIN DESIGNATIONS



CURRENT RATINGS

Be sure not to exceed the current ratings for each fuse. If necessary, replace individual fuses (GMT-type only) with those of a higher rating. The total current capacity for a group of fuses (fuses 1-6 or 7-13) should not exceed 10 amperes.

FRONT PANEL RIVITS

A small color-coded plastic rivit above each fuse holder on the front panel provides quick identification of the fuse ratings. The unit is shipped with all 0.5 amp fuses and all red rivits installed. (The red rivits indicate 0.5 amp fuses.)

Spare rivits for two other fuse ratings are shipped with the unit:

- 10 yellow rivits, to indicate 0.18 amp fuses
- 10 violet rivits, to indicate 0.25 amp fuses

Fuse ratings and their associated color codes, along with part numbers for fuses and rivits supplied by Dantel, are listed in Table B.

TABLE B - FUSE COLOR CODES AND CURRENT RATINGS

BEAD COLOR	FUSE RATING	FUSE PART NUMBER	BEAD PART NUMBER
Yellow	0.18 A	Not Available	924-00017-00
Violet	0.25 A	913-00009-00	924-00015-00
Red	0.5 A	913-00006-00	924-00016-00
Black	0.65 A	Not Available	Not Available
Brown	0.75 A	913-00007-00	Not Available
Gray	1.0 A	913-00002-00	Not Available
White	1.33 A	913-00008-00	Not Available
Orange	2.0 A	913-00003-00	Not Available
Blue	3.0 A	Not Available	Not Available
Green	5.0 A	913-00005-00	Not Available
Black w/White Dot	7.5 A	Not Available	Not Available
Red w/ White Dot	10.0 A	913-00010-00	Not Available

INSTALLATION

Removing or Replacing a Rivit

To remove or replace a color-coded fuse rating rivit, follow these steps:

- Remove the B11-48001-01 module from the shelf and place it on a flat surface, component side up.
- Apply pressure to the back of the colored rivit, supporting the front panel with equal pressure from the front-side edge (to prevent bending it).

  The rivit are force-fit, so it may be necessary to push against the backside of the rivit with a small flat object. The rivit, when loosened, falls out the front side of the hole in the face-plate.
- Fit the new color-coded rivit into the vacant opening from the front of the front panel.
- While supporting the front panel from the back side, push the rivit into the opening from the front side until it becomes firmly seated in the opening.
- Reinstall the B11-48001-01 module in the shelf.

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OPERATION

The front panel LED lights whenever a fuse blows. To determine which fuse has blown, look for the one whose indicating flag is in the UP position. Replace the blown fuse with a new one of the same rating after the cause of the failure is corrected.

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TECHNICAL SPECIFICATIONS - B11-48001 FUSE MODULE

DESCRIPTION	VALUE
Input Voltage Range	-21 to -56 VDC
Input Current	
@ -21 VDC	
Non-Alarmed	13 mA
Alarmed	5 mA
@ -56 VDC	
Non-Alarmed	20 mA
Alarmed	10 mA
Heat Dissipation	
@ -21 VDC	
Non-Alarmed	1.0 BTU/Hr
Alarmed	1.3 BTU/Hr
@ -56 VDC	
Non-Alarmed	5.3 BTU/Hr
Alarmed	2.6 BTU/Hr
Fuse Ratings	13 ea., 1/2 Amp, GMT-type
Weight	8 ounces
Physical Dimensions	1.4" x 6.0" x 5.6"
Operating Temperature Range	0° to 55° Degrees C.

NOTES

WARRANTY

LIMITED WARRANTY

The Seller warrants that the standard hardware products sold will be free from defects in material and workmanship and perform to the Seller's applicable published specifications for a period of 18 months for hardware, and 3 months for software, from the date of the original invoice. The liability of the Seller hereunder shall be limited to replacing or repairing, at its option, any defective products which are returned F.O.B. to the Seller's plant, (or, at the Seller's option, refunding the purchase price of such products). In no case are products to be returned without first obtaining permission and a customer return authorization number from the Seller. In no event shall the Seller be liable for any consequential or incidental damages.

Equipment or parts which have been subject to abuse, misuse, accident, alteration, neglect, unauthorized repair or installation are not covered by warranty. The Seller shall make the final determination as to the existence and cause of any alleged defect. No warranty is made with respect to custom equipment or products produced to the Buyer's specifications except as specifically stated in writing by the Seller in the contract for such custom equipment.

This warranty is the only warranty made by the Seller with respect to the goods delivered hereunder, and may be modified or amended only by a written instrument signed by a duly authorized officer of the Seller and accepted by the Buyer.

Warranty and remedies on products not manufactured by the Seller are in accordance with warranty of the respective manufacturer. THE SELLER MAKES NO OTHER WARRANTY OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED; AND ALL IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEEDS THE AFORESAID OBLIGATIONS IS HEREBY DISCLAIMED BY THE SELLER.

IN CASE OF DIFFICULTY

If you experience difficulty with this equipment, check the following, as appropriate:

1. **Switch settings**
2. **Signal levels**
3. **Software configuration**
4. **Connections between Dantel's equipment and your equipment.**

If there is still a problem, substitute equipment that is known to be good. For additional assistance, call Dantel's Technical Field Service Department weekdays, 6 A.M. to 5 P.M. pacific time:

1-800-4DANTEL (1-800-432-6835).

If a thorough checkout shows a piece of equipment has malfunctioned, you may return it to the factory. For repairs and emergency replacements, obtain a Return Material Authorization (RMA) number from the Customer Service Representative at **1-800-4DANTEL** (1-800-432-6835).

To ensure expedient processing of your order, provide a purchase order number and shipping and billing information when requesting an RMA number. Also, when the units are returned to Dantel, include a description of the failure symptoms for each unit returned. Send defective equipment to:

Dantel, Inc. • 2991 North Argyle Avenue • Fresno, California 93727-1388