

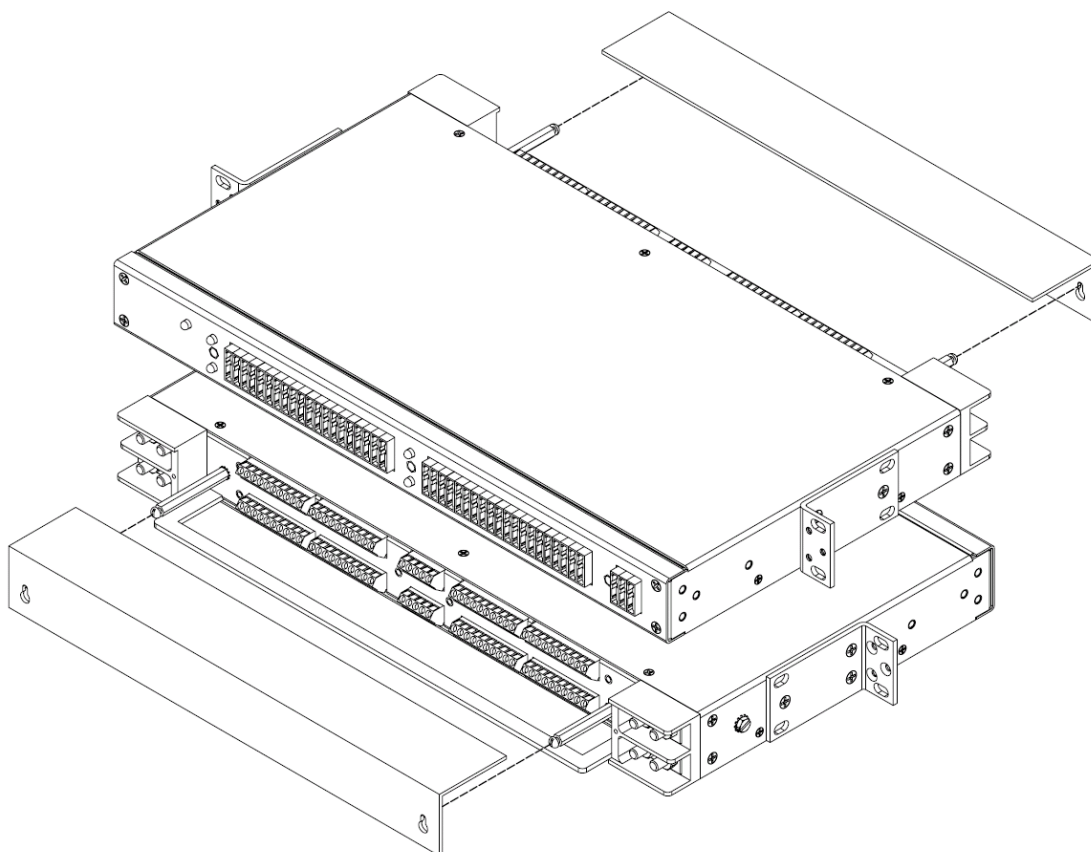


# FUSE PANEL

## Technical Practice

### FDP 2020

20/20 GMT  
NEBS Level 3 Certified



### FEATURES

- Polarity insensitive (+/-24 or +/-48 Vdc) battery voltage
- This panel can operate at 200 Amps of output current per panel (100 Amps per Bus)
- 2 isolated groups of 20 GMT fuses each
- 2 Isolated battery returns
- Green power LEDs provided for each bus
- Common (C), normally closed (NC), normally open (NO) alarm extensions (2 sets of dry form "C" contacts)
- Both GND and - BATTERY activated external alarms (alarms that originated outside panel)
- Single 1.75" mounting height (single panel space)
- Brackets supplied are reversible for both 19" and 23" racks and 1.75" mounting spaces

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- Cable management bar (aka. towel bar) on rear panel included (flush style)

## 1. GENERAL DESCRIPTION

1.1. The Newmar model FDP 2020 Fuse Panels provide up to 40 circuits for the distribution of DC power to equipment. Each of the 40 circuits is individually protected by a GMT style telecommunication fuse located on the panel's faceplate. Alarm circuits are provided to indicate and extend alarm conditions when faults occur.

1.2. Input wiring is connected to a high current, 2-hole lug input block located at the rear of the panel. Each group of fuses or bus has its own completely isolated inputs, allowing the distribution of two battery voltages through the same panel.

1.3. The power is distributed to the load side equipment through GMT style fuses. There are 20 fuses per fuse group and two groups per panel. Each fuse position is available for installer connection at the rear of the panel. A designation card is provided for keeping records of which position is connected to which equipment and what amperage of fuse is to be used.

1.4. Alarm circuits are provided to alert service personnel of fault conditions. A Fuse alarm is caused when any of the GMT distribution fuses opens. A red LED on the faceplate will illuminate to signal a fuse alarm. These fuse panels have two sets of common (C), normally closed (NC), normally open (NO) contacts for Fuse Alarms or battery or ground activated external Alarms.

1.5. The FDP 2020 Fuse Panels are made from 0.050" steel and painted black. Single rack height panels are shipped with universal brackets attached to panel which will fit both 19" and 23" wide racks and use only one 1.75" panel space. A second loose set of mounting brackets are provided which allow mounting on 1" rack mounting hole centers (standard brackets are 1" centers.) The panel has a clear L shaped lexan to protect the wiring connections on the back of the panel.

## 2. APPLICATION

2.1. The N250140-N-L0522 / FDP 2020 Fuse Panels are designed to be used in the distribution of DC power. They are rack mount panels that can provide fused DC power to up to 40 individual circuits (20/20 GMT), or 20 pieces of equipment, providing redundant battery feeds to each.

## 3. CIRCUIT DESCRIPTION

3.1. Power is connected to the fuse panel via plastic input blocks located at the rear of the panel, which are 1/2" studs on 5/8" centers (Torque 5.5 ft-lbs). These inputs are high current stud blocks that supply current to the fuse panel.

3.2. Distribution of current from each bus is provided by GMT style fuses. Each bus has 20 fuse holders for distribution, fuses F1 to F20 for each Bus A and Bus B. Each fuse position is made available at the rear of the fuse panels. Maximum output current of each fused position is rated at 15 Amps, provided the maximum bus current is not exceeded.

3.3. Fuse alarm circuitry provides 2 sets of dry form "C" contacts. In the event of a fuse or external alarm, both sets of normally open contacts will close, providing a connection between "NO" and "C" terminals on each set.

**Note:** Both sets of relay contacts operate together in the event of a fuse alarm or an external alarm.

## 4.2 INSTALLATION

**Please read completely before beginning.**

4.1. Unpack and inspect the Newmar Fuse Panel for possible damage incurred during shipping. If damage is found, file a claim immediately with the carrier and notify Newmar.

4.2. Once the panel is unpacked, verify that there are two mounting brackets. Fasten the mounting brackets to the sides of the fuse panel using the screws provided, such that it will fit the rack you wish to mount the panel in. Single rack height panels have a universal bracket that allows the panel to be mounted on either 19" or 23" wide equipment racks and can be installed for flush mounting of the fuse panel, or for a 5" offset mounting.

4.3. Mount the fuse panel on the equipment rack using the thread forming #12-24 rack mounting screws and lock washers provided.

**WARNING:** For safety reasons all wiring should be done with the power source removed (when possible.)

4.4. Remove the distribution fuse feeding the input cables that are to be connected to the new panel. Using input cables specified by the Job Engineer, hook up the input cables to the input terminal block on the fuse panel. This panel has two sets of inputs. Torque \_" steel nuts to 5.5 ft-lbs.

**Please be sure to observe the proper polarity.**

4.5. The battery outputs are available at the terminals blocks at the rear of the panel. Each fuse position is numbered and that fused circuit is available at the terminal block position with the same number.

4.6. All battery return (ground) connections are terminated on the isolated battery return on the rear of the panel. Note that these returns are isolated from the chassis.

4.7. For this fuse panel you have common (C), normally closed (NC), normally open (NO) alarm extensions (two sets of dry "C" contacts.) You have ground activated external alarm and battery activated external alarm (alarms that originated outside the panel.)

4.8. **CHASSIS GROUND;** For safety reasons, and as recommended by NEBS, the chassis should be electrically connected to the rack ground. From step 4.3. the panel should already be ground to the rack via the #12-24 thread forming rack screws and outside tooth lock washers. In addition to grounding via the mounting brackets, it is recommended you ground the chassis using a ground cable and the #10 bolt and locks on side of chassis (#10 screw torque; 2ft/lbs or 2.7Nm.)

4.9. Power up the panel by installing the distribution fuse supplying the panel. The panel should power up and have no red LEDs illuminated. Green power LEDs should be lit.

4.10. Install panel output distribution fuses as required. Use the provided designation card to keep a record of which equipment is connected to which circuit and what the fuse rating is.

4.11. If you wish to verify the Fuse alarm circuit, you can insert a blown or open fuse into one of the empty fuse holders. A red Fuse Alarm LED should light on the faceplate and the alarm extension relay should activate and extend appropriate alarm. If you wish to verify the EXT Alarms you can connect GND or -BAT and the red EXT Alarm should light on the faceplate and the alarm extension relay should activate and extend appropriate alarm.

**Note:** If you have any questions, suggestions, or problems, please don't hesitate to call Newmar Technical Support at (714) 751-0488 or contact us through the Internet at <http://www.newmartelecom.com>. Your input helps us in our ongoing product improvement process that benefits both of us. **Thank You.**

## 5. SPECIFICATIONS

5.1. Voltage	-/+24 or +/-48 VDC Typical -/+22 to +/-55 VDC Max.	5.10. Relay Contacts	2 Amps Max.
5.2. Current/Fuse	15 Amps Maximum	5.11. Dimensions	1_”H, 17”W,10_”D (excluding brackets)
5.3. Current/Bus	100 Amps Max./Bus	5.12. Rack Mounting	19” and 23” Racks for 1” and 1.75” Panel Spaces
5.4. Current/Panel	200 Amps	5.13. Weight	Apprx. 8 Lbs
5.5. Output Fuse	GMT Style Fuse Holders	5.14. Operating Temp.	-20° to +60°C (-5° to +140°F)
5.6. Output/Bus	40 Fuses (20 per bus)	5.15. Color	Black
5.7. Output/Panel	2 Busses per Panel		
5.8. Input Block**	Two _” Stud on 5/8 center		
5.9. Output Block	#26 AWG to 12 AWG wire		

\*\*Torque = 5.5 ft-lbs

## 6. WARRANTY

This product manufactured for Newmar by Noran Tel is warranted to be free from defects from workmanship and components for a period of two years from the date of shipment. During this period any defective products shipped prepaid to Newmar will be repaired or replaced at our discretion and returned at no further cost to the customer. Newmar shall not be liable for any consequential or indirect damage of any type or nature, nor for any cost of reinstallation. Any product that has been subject to improper installation, unauthorized alteration, accident or misuse is rendered void of warranty.

Newmar also provides a repair service for products not covered by warranty. Charges will be levied for labor, components, and transportation.

To return a unit for repair contact the Newmar Shipper/Receiver by telephone and obtain a **Return Material Authorization Number (RMA.)**

Be prepared to provide the following information:

1. Product Name
2. Product Model Number
3. Product Serial Number
4. Your contact person and phone number.
5. Your company name and return address

Package the unit in its original shipping carton or adequate substitute, along with a description of the problem or defect. Clearly mark the outside of the carton with Return Material Authorization Number and send the unit to the address shown below:

**NEWMAR**  
**2911 West Garry Ave.**  
**Santa Ana, CA 92704**

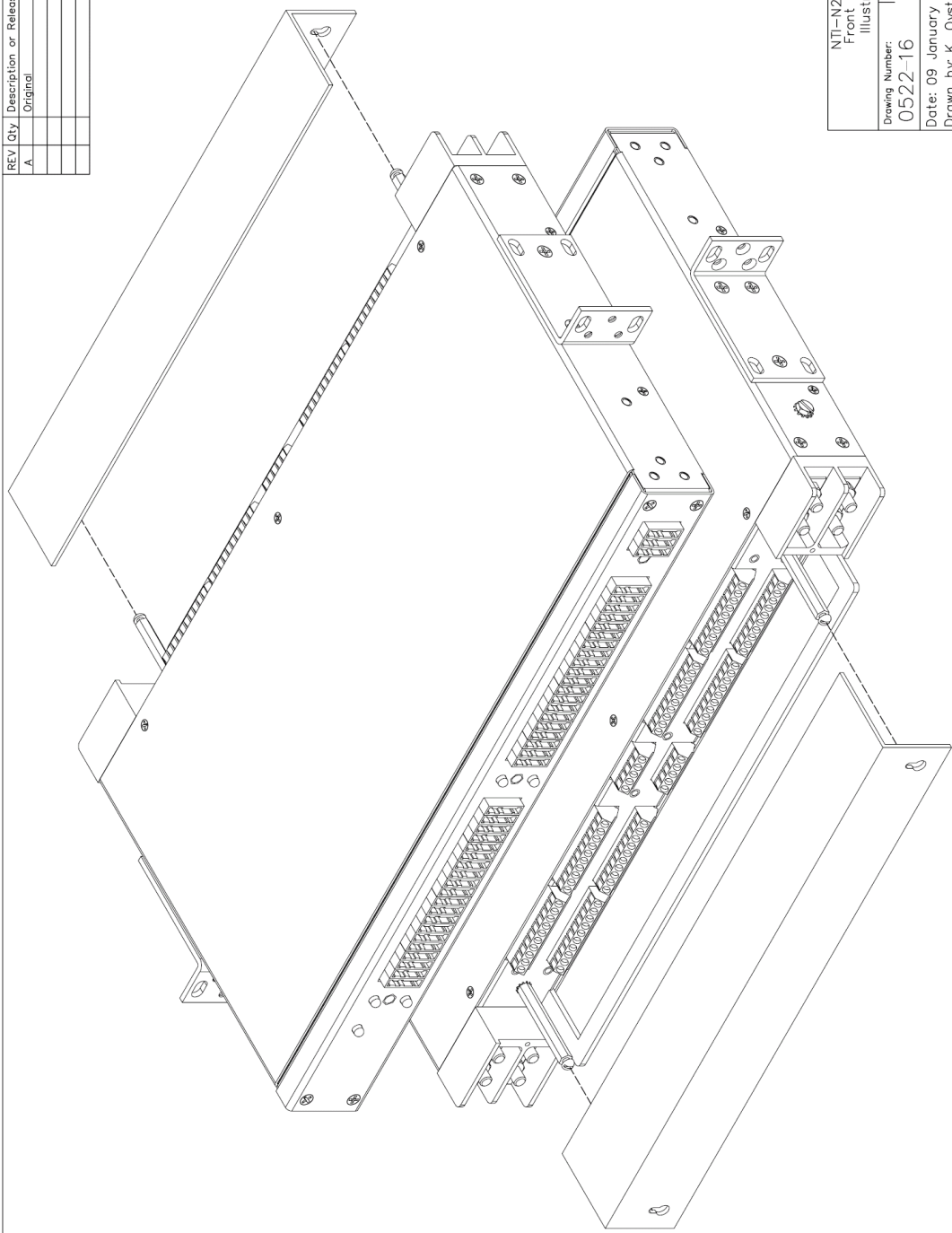
**Phone: (714) 751-0488**

**Fax: (714) 957-1621**

**E-mail: [sales@newmarpower.com](mailto:sales@newmarpower.com)**

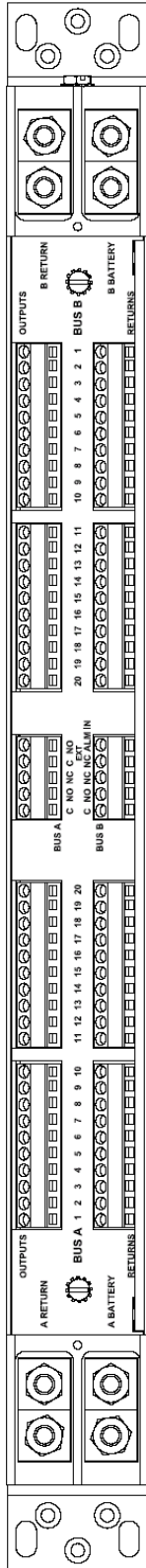
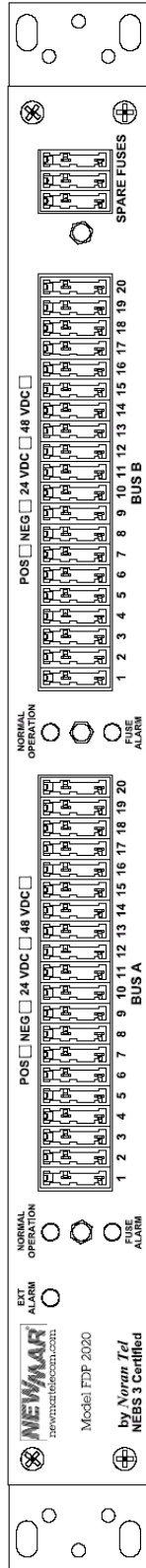
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REV	QTY	Description or Release Note	ECN	CKD	APD	DATE
A		Original	548			



NTI-N250140-N/L0522 Front and Rear Views Illustration Drawing			
Drawing Number:	Rev:	Drawn with:	Computer File:
0522-16	A	AutocAD by Autodesk	Noran Tel use only 0522-16A
Date: 09 January 2006	Plotted Scale: NTS		
Drawn by: K. Oystreck	Sheet: 1 of 1		

REV/ QTY	Description or Release Note	ECN	CKD	APD	DATE
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NTI-N250140-N/L0522  
 Front and Rear Views  
 Illustration Drawing

Drawing Number: <b>0522-17</b>	Rev: <b>A</b>	Drawn with: AutoCAD by Autodesk	Computer File: Naron Tel use only 0522-17A
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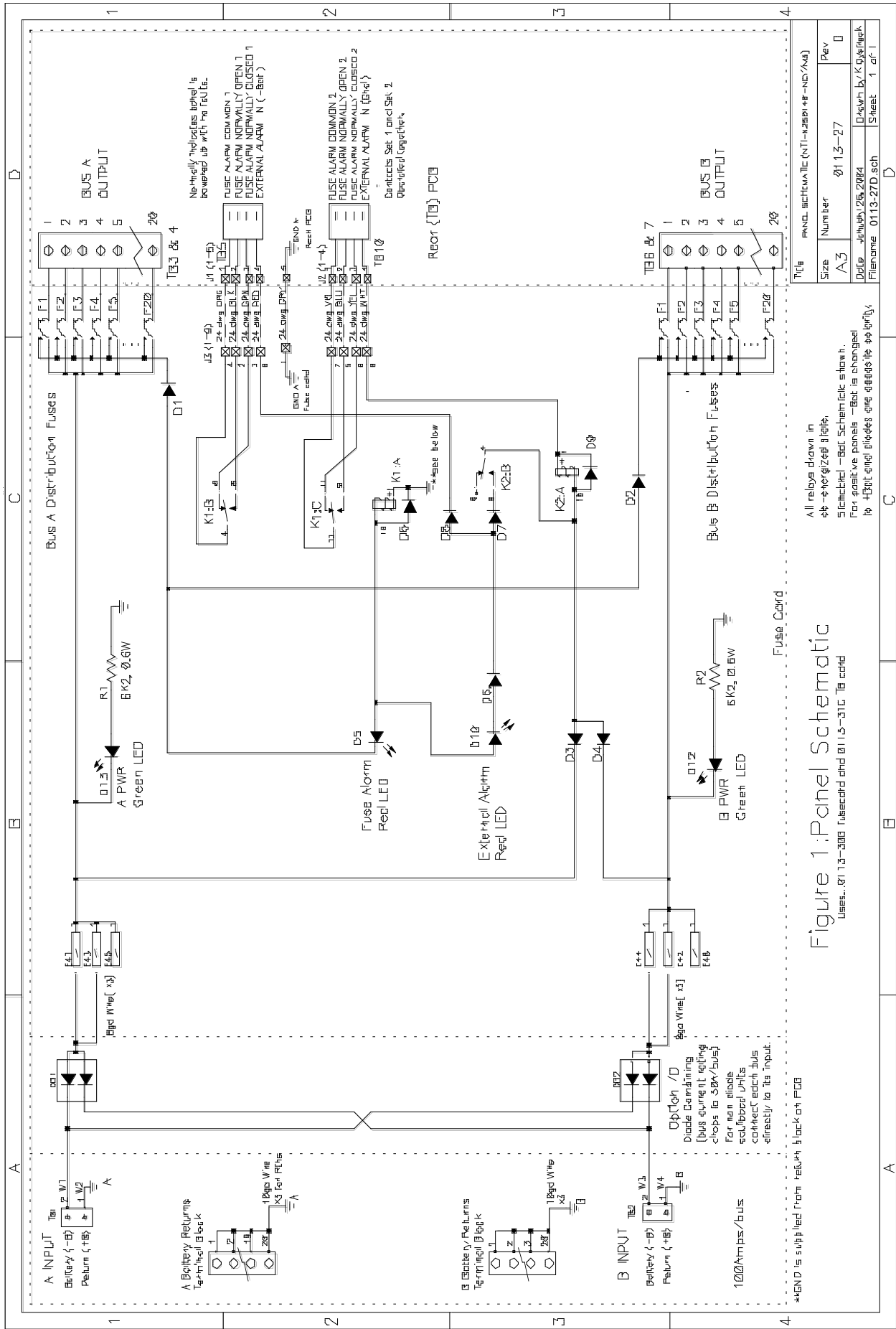


Figure 1: Panel Schematic

Notes: 0113-300 Fusecard and 0113-31C TB card  
 All relays drawn in de-energized state.  
 Switched - Bat. Schematic shown.  
 For positive panels - Bat. is changed to +Bat. and LEDs are changed to +Bat. / -.

\*GND is supplied from relay's backport PCB