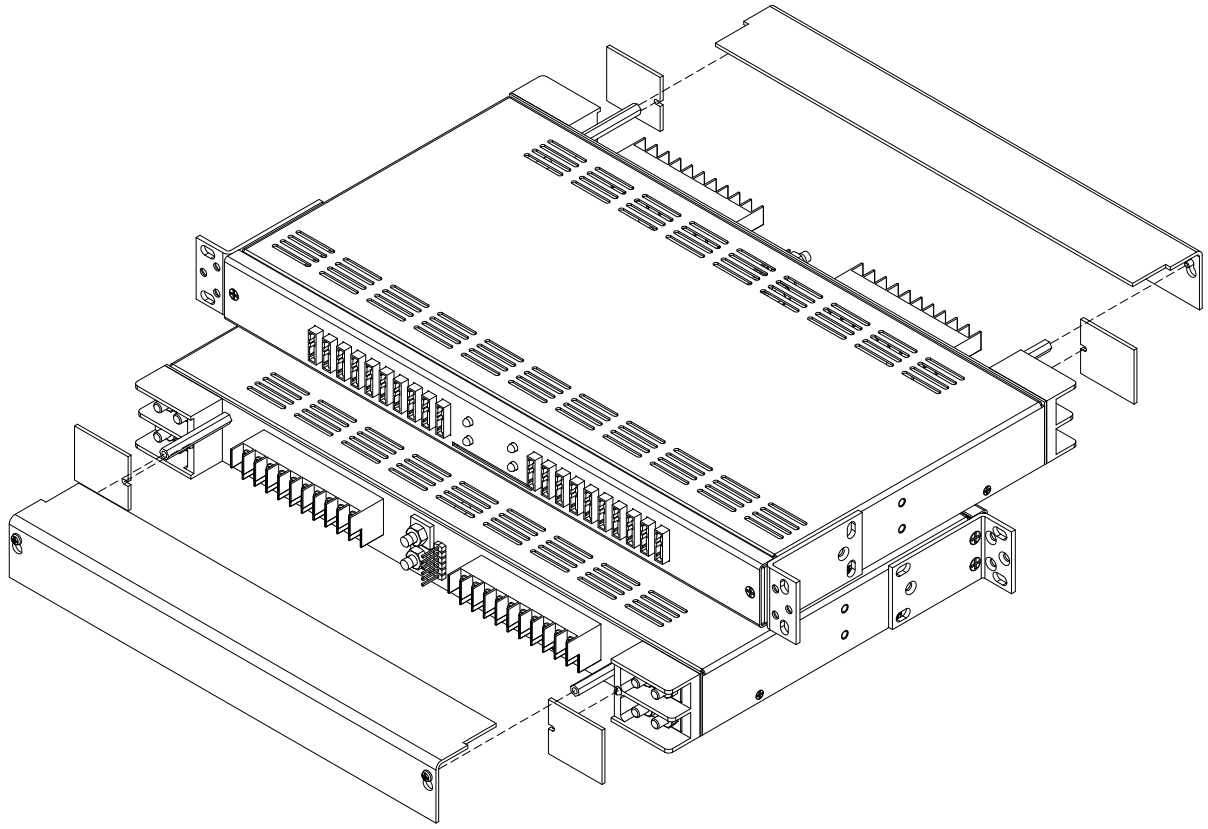
Noran Tel

a subsidiary of Westell Inc

Fuse Panel
Technical Practice

NPGMT1107

10/10 GMT
NEBS Level 3 Verified



FEATURES

- 2 isolated groups (busses) of 10 GMT style fuses in each (20Amps/GMT position max).
- Polarity insensitive (+/-24 or +/- 48 Vdc) battery voltage .
- This panel can operate at 200 Amps of output current per panel (100 Amps per Bus).
- Barrier terminal strips for fused outputs and isolated returns (grounds).
- Two sets of Form C relay contacts are provided to extend alarms.
- One set of alarm contacts for each; Bus A, and Bus B Alarm.
- Single 1.75” mounting height (single panel space).
- Mounting brackets are supplied for 1” & 1-3/4” spacing and are universal for 19” and 23” racks, with flush and offset mounting options.
- NEBS level 3 verified, with zone 4 earthquake.

1. GENERAL DESCRIPTION

1.1. The Noran Tel NPGMT1107 Fuse Panel provides up to 20 circuits for the distribution of DC power to equipment. Each of the 20 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. Normal Operation LEDs are provided to indicate the status of each bus in the panel.

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 10 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 is to be used.

1.4. Alarm circuits are provided to alert service personnel of fault conditions. A fuse alarm is a blown fuse within a given bus. A red fuse alarm LED ⚠ on the faceplate will illuminate when a fuse alarm condition is present. As well, the green Normal Operation LED ✓ will extinguish to signal a fuse alarm or input power failure and the appropriate relay contacts will change states. These fuse panels have common (C), normally open (NO) and normally closed (NC) terminals for alarms. Note, the use of the alarm contacts is optional, if you do not wish to extend the alarms, you don't have to do anything with the alarm pins. The "Normal" condition of the relay exists when the panel is powered up without any blown fuses. The local alarm LEDs are located on the front of the panel as shown in Figure 1.4.1

LED	SYMBOL	SIGNIFICANCE
GREEN	✓	NORMAL OPERATION
RED	⚠	BLOWN FUSE

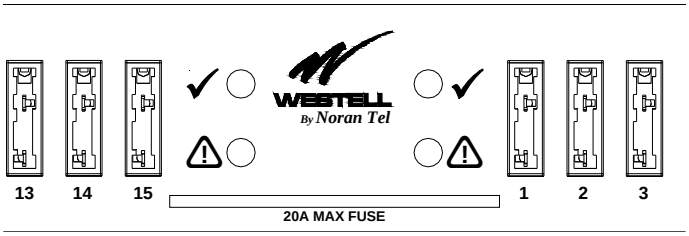


Figure 1.4.1

1.5. The NPGMT Fuse Panels are made from 0.050" steel and painted off-white. Single rack height panels are shipped with universal brackets (1" & 1-3/4" spacing) that will fit both 19" and 23" wide racks and use only one 1.75" panel space. The panel has a clear L shaped plastic shield to protect the wiring connections on the back of the panel.

2. APPLICATION

2.1. The NPGMT1107 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 20 individual circuits, or 10 pieces of equipment, providing redundant battery feeds to each.

2.2 The NPGMT family fuse panels are suitable for installation as part of a Common Bonding Network (CBN). As well, this family of fuse panels is suitable for restricted access locations in Network Telecommunications Facilities and OSP.

3. CIRCUIT DESCRIPTION

3.1. Power is connected to the fuse panel via ¼" studs on 5/8" centers located at the rear of the panel (torque 5.5 ft-lbs). These inputs are high current stud blocks that supply current to the fuse panel. Connect the battery return cable to the stud input that is labeled "RTN" and the Battery supply cable to the terminals labeled "BAT".

3.2. Distribution of current from each bus is provided by GMT style fuses. Each bus has 10 fuse holders for distribution, the fuses are labeled 1 to 10 on each bus. Each fuse position is made available at the rear of the fuse panel.

Maximum fuse size allowed in each position is at 20 Amps, provided the maximum bus current or BDFB fuse is not exceeded (each bus is rated at 100Amps max).

3.3. Alarm circuitry provides 1 set of form “C” contacts (C, NO and NC) for each bus (Bus A, and Bus B). In the event of a fuse alarm or loss of power, the proper relay will change states, providing a connection between the Normally Open “NO” and Common “C” terminals for that bus. The normally closed “NC” terminal will open to high impedance.

4. INSTALLATION

Please read completely before beginning.

WARNING: Installation should only be performed by an experienced Installer familiar with DC power distribution systems.

This equipment is intended to be installed in RESTRICTED ACCESS LOCATIONS by TRAINED PERSONNEL ONLY.

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

4.2. Once the panel is unpacked, verify that there are three mounting brackets. The bracket with the vertical slot is used on both 1” and 1-3/4” spacing. There will be two brackets with horizontal slots, these will fit 1” or 1-3/4” spacing. All three brackets are universal for 19” and 23” rack mount spacing (see figure 4.2.1) and can be mounted so the panel can be installed for a flush mounting or 5” offset. Adjust the position and orientation of the correct mounting brackets on the fuse panel, such that it will fit the rack you wish to mount the panel in. Please see drawing 1107-16 on page 6 for mounting bracket configurations.

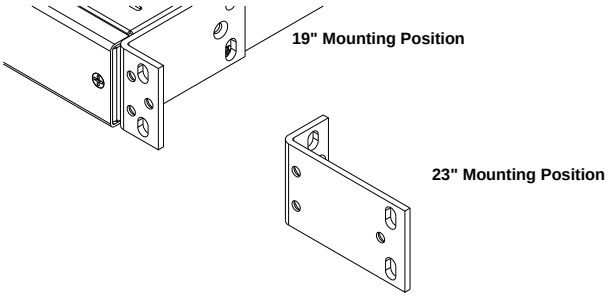


Figure 4.2.1

4.3. Mount the panel on the equipment rack using the thread forming #12-24 rack mounting screws and tooth 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 (“BAT” & “RTN” for each bus). Each high current input terminal uses a two hole compression lug (1/4” on 5/8”, torque to 5.5 ft-lbs). a two hole lug must be used for proper operation (see fig 4.4.1)

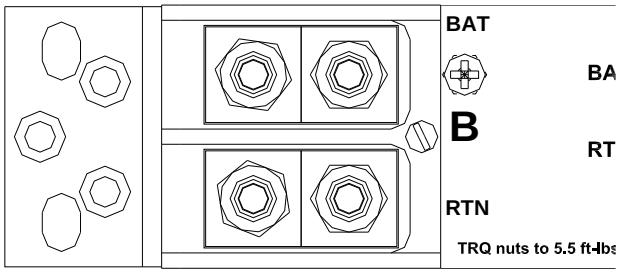


Figure 4.4.1

4.5. The battery outputs (“BAT”) are available at the terminal blocks (#6 screw torque to 10 in-lbs, up to 10awg fork) at the rear of the panel. Each fuse position is numbered and that circuit is available at the terminal block position with the same number.

4.6. All battery return (“RTN”) connections are also terminated on barrier strips (#6 screw, up to 10awg fork). Note, these returns are isolated from the chassis frame.

4.7. This panel has Bus A, and Bus B alarms. Each alarm has a common (C), normally open (NO) and normally closed (NC) alarm contact. In an alarm the "C" contact will short to the "NO" contact, and the "NC" will open. Wire-wrap the alarm connections as per your alarm system requirements. Noran Tel recommends you fuse the alarm battery supply (ABS) to 1A or less to protect the alarm wiring and circuitry.

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 two ¼" studs and nuts on the back of the chassis (1/4" bolt torque; 5.5ft-lbs or 7.5Nm). Consult your internal practice or local electric code for AWG sizes.

4.9. Power up the panel by installing a Listed or Recognize fuse/breaker rated for at least 60Vdc, with a trip rating of 100 Amps Max. The panel should power up with the Normal Operation LED ✓ illuminated and without any red LEDs ⚠ illuminated, and the relays should be in the "Normal" state ("C" connected to "NC").

4.10. If you wish to verify the fuse alarm circuit, you can insert a blown fuse into one of the empty fuse holders. The red Fuse Alarm LED ⚠ should light and the Normal Operation LED ✓ should extinguish and the appropriate alarm extension relay should change states to extend the alarm.

4.11. Install panel output distribution fuses as required. Be sure to size fuses to no more than 70% of their rating (14A max for a 20A fuse). Use the provided designation card in the faceplate to keep a record of which equipment is connected to which circuit and what the fuse rating is. Be careful not to overload the panel bus or BDFB fuse position rating supplying the panel.

Note: If you have any questions, suggestions, or problems, please don't hesitate to call Noran Tel Technical Support at (306) 721-3535, (email) info@norantel.com or contact us through the Internet at http//www.norantel.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 -/+58 VDC Max.
5.2. Fuse Size	20 Amps Max.*
5.3. Current/Bus	100 Amps Max.**
5.4. Current/Panel	200 Amps**
5.5. Output Fuse	GMT Style Fuse Holders
5.6. Output/Bus	10 Fuses (20 per panel)
5.7. Output/Panel	2 Busses per Panel
5.8. Input Block	Two ¼" Studs on 5/8 centers Max std lug is 1 AWG Max lug width = 0.710"
5.9. Output Block	#22 AWG to 12 AWG wire Or fork/ring for #6 screw, 10AWG forks/rings will work Max lug width = 0.320"
5.10. Alarm Block	0.045" sq wire wrap pin
5.11. Relay Current	1 Amps/58Vdc max
5.12. Dimensions	1¾ H, 17 W,10½ D (excluding brackets)
5.13. Rack Mounting	19" and 23" Racks for 1"or 1-3/4" Panel Spaces
5.14. Weight	Appx 8 Lbs
5.15. Operating Temp.	-40° to +65°C (-40°F to +149°F)
5.16. Color	Off White
5.17 Interrupt Fuse Rating	450A (max)

*We recommend that you size fuses such that they do not run at more than 70% of their rating. Thus a 20A fuse should not be run at more than 14 A.

**The sum of the fuse ratings must not exceed the bus rating, or input fuse rating

Compatible lugs for Input Block
2 hole compression lugs for 1/4" studs on 5/8" centers (torque 5.5ft-lbs), example;

Panduit®	LCD1-14A	1awg wire
	LCD2-14A	2awg wire
	LCD4-14A	4awg wire
	LCD6-14A	6awg wire
	LCD8-14A	8awg wire

Output lugs (locking fork recommended):
Ring or fork for #6 screw (up to 10awg)

NOTE: If fuse size is not specified in the equipment manual, fuses should be selected such that they do not run at more than 70% of their rating. When installing fuses, the sum of the fuses installed in each bus should not exceed the bus rating (100 Amps) or input fuse rating.

6. WARRANTY

This product manufactured by Noran Tel is warranted to be free from defects from workmanship and components for a period of 7 years from the date of shipment. During this period any defective products shipped prepaid to Noran Tel will be repaired or replaced at our discretion and returned at no further cost to the customer. Noran Tel 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.

Noran Tel 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 Noran Tel Customer Service by telephone and obtain a **Return Authorization Number.**

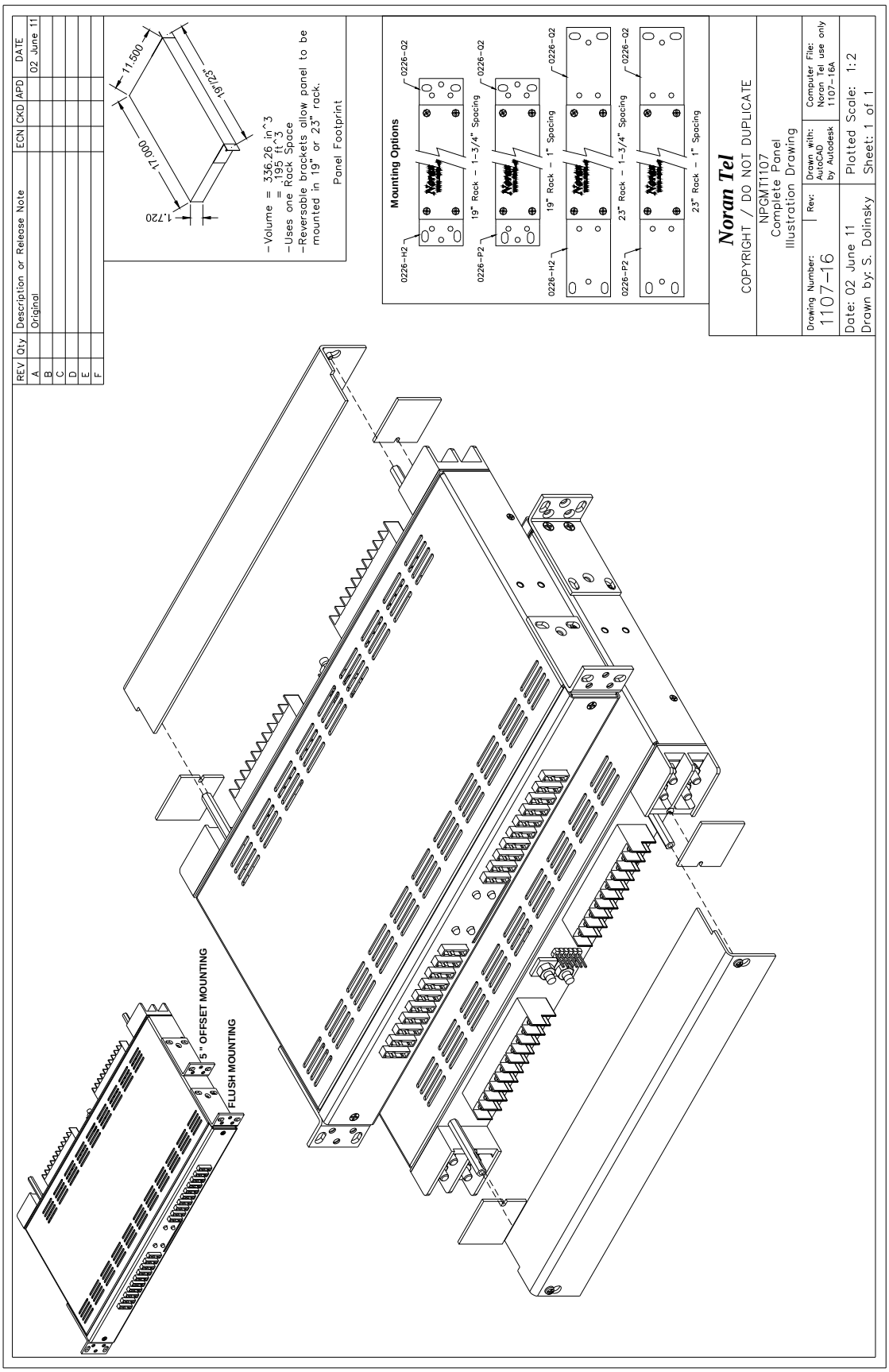
Be prepared to provide the following information:

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 clear & complete description of the problem or defect. Clearly mark the outside of the carton with the Return Authorization Number and send the unit to the address shown below:

Noran Tel
363 Maxwell Crescent
Regina, Saskatchewan
Canada, S4N 5X9

Phone: (306) 721-3535
Fax: (306) 721-3507
E-mail: info@norantel.com
Internet: http://www.norantel.com


REV | Qty | Description or Release Note | ECN | CKD | APD | DATE
A | | Original | | | | 02 June 11
B
C
D
E
F
11.500
17.000
19.725
1.720
Panel Footprint
-Volume = 336.26 in^3
= 194.5 ft^3
-Uses one Rack Space
-Reversable brackets allow panel to be mounted in 19" or 23" rack.
Mounting Options
0226-H2
0226-02
19" Rack - 1-3/4" Spacing
0226-P2
0226-02
19" Rack - 1" Spacing
0226-H2
0226-02
23" Rack - 1-3/4" Spacing
0226-P2
0226-02
23" Rack - 1" Spacing
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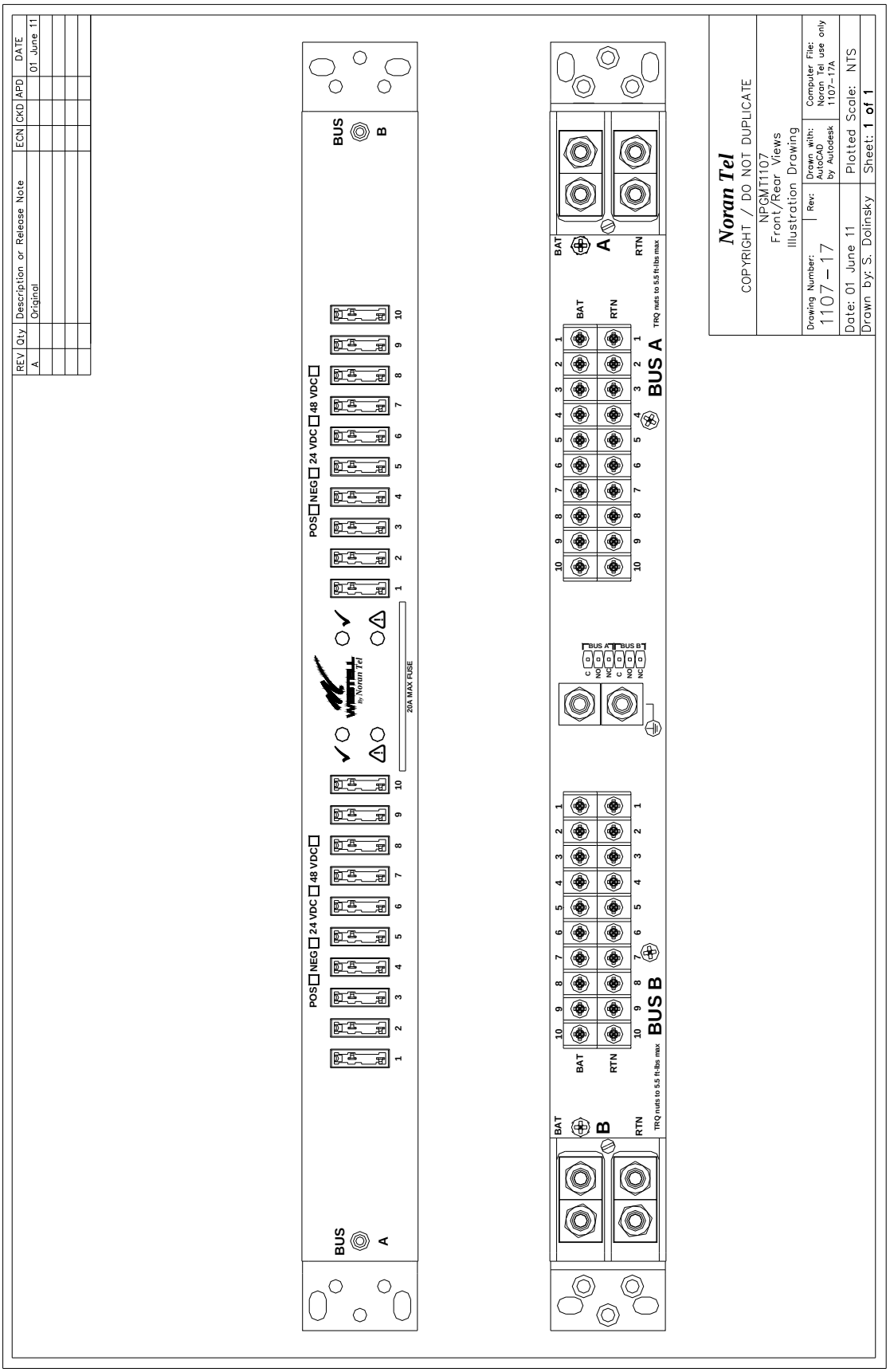
COPYRIGHT / DO NOT DUPLICATE
NPGMT1107
Complete Panel
Illustration Drawing
Drawing Number: 1107-16
Rev:
Drawn with: AutoCAD by Autodesk
Computer File: Noran Tel use only 1107-16A
Date: 02 June 11
Drawn by: S. Dolinsky
Plotted Scale: 1:2
Sheet: 1 of 1
5" OFFSET MOUNTING
FLUSH MOUNTING


REV | Qty | Description or Release Note | ECN | CKD | APD | DATE
A | Original | 01 June 11
POS NEG 24 VDC 48 VDC
BUS A
BUS B
20A MAX FUSE
BAT
RTN
TRQ nuts to 5.5 ft-lbs max
BUS A
BUS B
C
NO
NC
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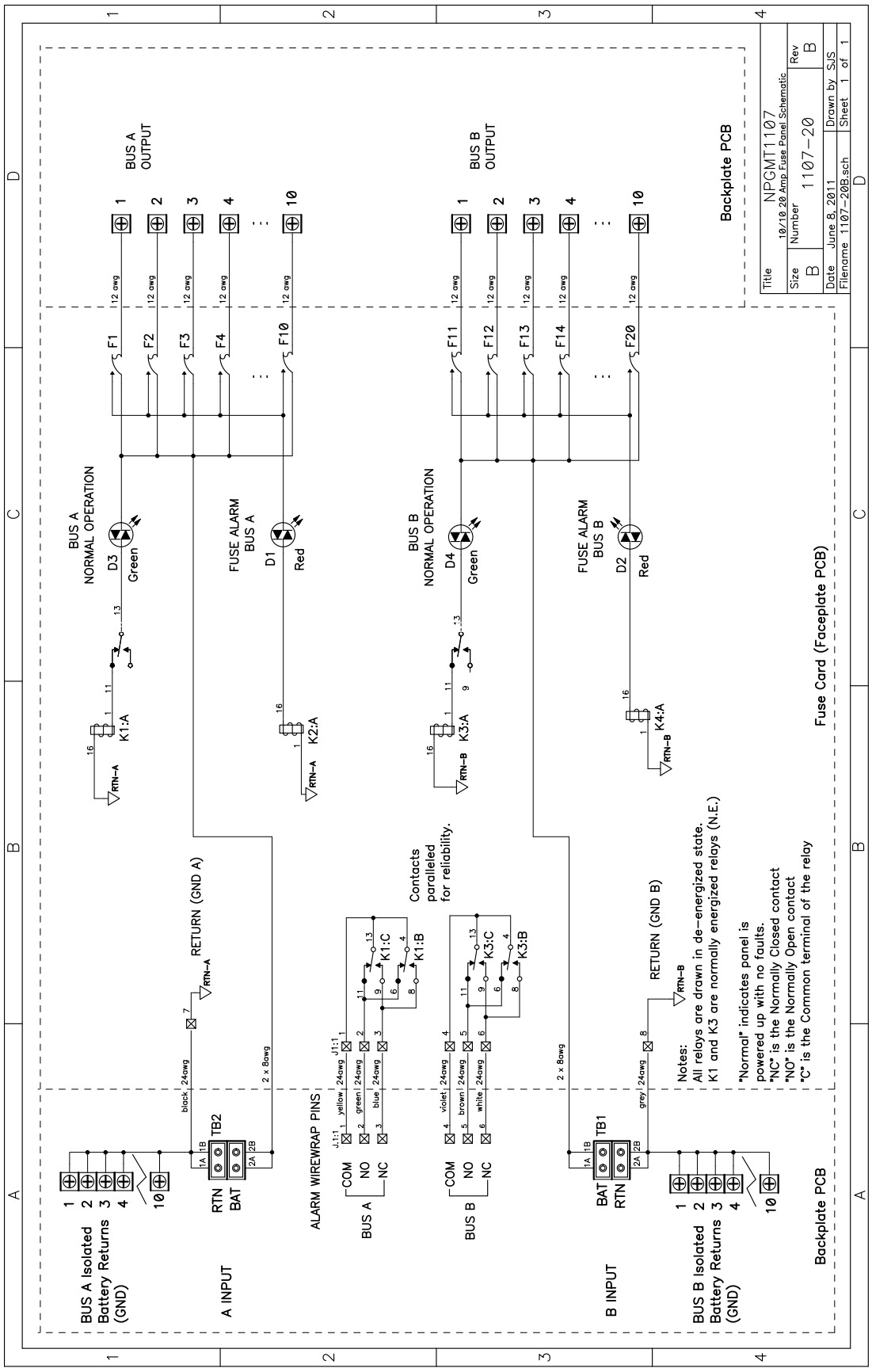
COPYRIGHT / DO NOT DUPLICATE
NPGMT1107
Front/Rear Views
Illustration Drawing
Drawing Number: 1107-17
Rev: A
Drawn with: AutoCAD by Autodesk
Computer File: Noran Tel use only 1107-17A
Date: 01 June 11
Plotted Scale: NTS
Drawn by: S. Dolinsky
Sheet: 1 of 1


BUS A Isolated Battery Returns (GND)
A INPUT
RTN
BAT
TB2
RETURN (GND A)
RTN-A
2 x 8awg
ALARM WIREWRAP PINS
BUS A
COM
NO
NC
Contacts paralleled for reliability.
K1:C
K1:B
BUS B
K3:C
K3:B
B INPUT
BAT
RTN
TB1
RETURN (GND B)
RTN-B
BUS B Isolated Battery Returns (GND)
Notes:
All relays are drawn in de-energized state.
K1 and K3 are normally energized relays (N.E.)
"Normal" indicates panel is powered up with no faults.
"NC" is the Normally Closed contact
"NO" is the Normally Open contact
"C" is the Common terminal of the relay
Backplate PCB
BUS A NORMAL OPERATION
D3
Green
FUSE ALARM BUS A
D1
Red
K1:A
K2:A
BUS A OUTPUT
F1
F2
F3
F4
F10
BUS B NORMAL OPERATION
D4
Green
FUSE ALARM BUS B
D2
Red
K3:A
K4:A
BUS B OUTPUT
F11
F12
F13
F14
F20
Backplate PCB
Fuse Card (Faceplate PCB)
Title
NPGMT1107
10/10 20 Amp Fuse Panel Schematic
Size
B
Number
1107-20
Rev
B
Date
June 8, 2011
Drawn by
SJS
Filename
1107-20B.sch
Sheet
1 of 1