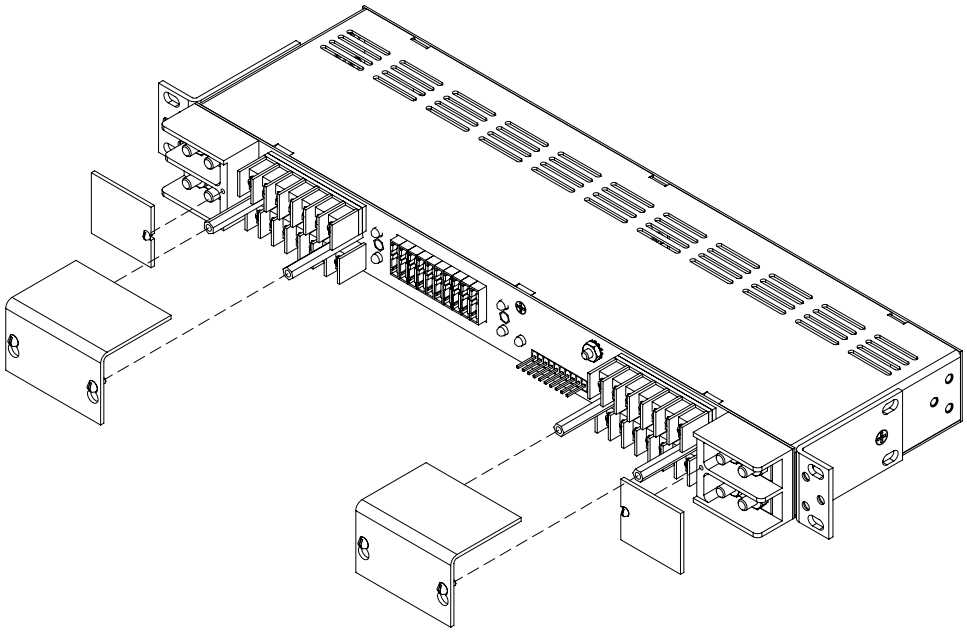
Westell

FUSE PANEL

Technical Practice

N250110-N-0803

5/5 GMT Front Access
NEBS Level 3 Certified



FEATURES

- 2 isolated groups (busses) of 5 GMT fuses in each (15Amps/GMT position).
- Polarity insensitive (+/- 24 or +/- 48 Vdc) battery voltage (other voltages, see Ordering Options).
- This panel can provide 100 Amps of fusing per panel (50 Amps of fusing per Bus).
- This panel can operate at 66 Amps of output current per panel (33 Amps per Bus).
- Barrier terminal strips for fused outputs and isolated returns (grounds).
- Three sets of Form C relay contacts are provided to extend alarms.
- One set of alarm contacts for each; MAJOR Bus A, MAJOR Bus B and MINOR External Input Alarm.
- MINOR External Input Alarm activated by a ground signal applied to the input pin.
- Front access design has all terminations on front of panel, (1RU panel, 1.75”H).
- 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 certified, with zone 4 earthquake. RoHS Compliant.
- NRTL Safety Listed

1. GENERAL DESCRIPTION

1.1. The Westell N250110-N/0803 Fuse Panel provides up to 10 circuits for the distribution of DC power to equipment. Each of the 10 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 on the front of the panel. (See Figure 4.2.1) 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 5 fuses per fuse group and two groups per panel. (See Figure 3.2.1) Each fuse position is available for installer connection on the front of the panel. (See Figure 4.5.1) 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. The panel is equipped with dummy fuses in all unused positions.

1.5. 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 fuse alarm LED on the faceplate will illuminate and the Normal Operation LED will extinguish to signal a fuse alarm and also the appropriate MAJOR relay contacts will change states. (See Figure 3.2.1) The fuse panel has common (C), normally open (NO) and normally closed (NC) terminals for both Major and Minor alarms. A Major alarm being a fuse or power failure in that bus and a Minor alarm being an external alarm. The external alarm is ground activated (20mA required to activate alarm). 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. (See Figure 4.7.1)

The "Normal" condition of the relay exists when the panel is powered up without any blown fuses or externally activated alarms.

The red External Alarm LED on the units face plate will light when a ground is connected to the MINOR "Alarm In" terminal (20mA max signal required to activate alarm).

1.6. The N250110-N/0803 fuse panel is made from 0.050" steel and painted off white. This panel is shipped with universal brackets that will fit both 19" and 23" wide racks and uses only one 1.75" panel spaces. The panel has two clear L shaped shields to protect the wiring connections on the front of the panel. (See Figure 1.6.1)

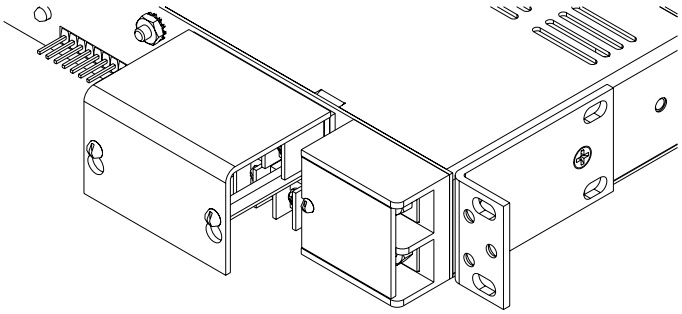


Figure 1.6.1

2. APPLICATION

2.1. The N250110-N/0803 Fuse Panel is designed to be used in the distribution of DC power. They are rack mount panels that can provide fused DC power to up to 10 individual circuits, or 5 pieces of equipment, providing redundant battery feeds to each, if desired.

3. CIRCUIT DESCRIPTION

3.1. Power is connected to the fuse panel via ¼" studs on 5/8" centers located on the front 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 is connected to the terminals labeled "BAT".

3.2. Distribution of current from each bus is provided by GMT style fuses. Each bus has 5 fuse holders for distribution, the fuses are labeled 1 to 5 on each bus. (See Figure 3.2.1) Each fuse position is made available on the front of the fuse panel. Maximum output current of each fused position is rated at 15 Amps, provided the maximum bus current or BDFB fuse is not exceeded. (each bus is rated at 50Amps max) Load current should not exceed 66% of the fuse capacity. Fuses should be selected at 1.5 times the maximum current draw of the equipment.

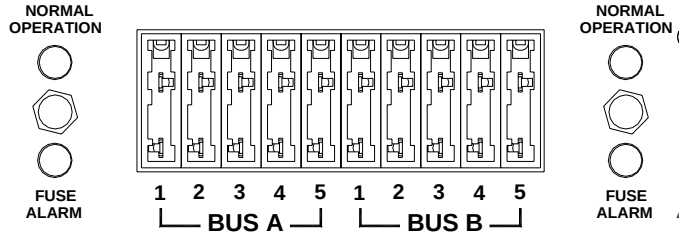


Figure 3.2.1

3.3. Fuse alarm circuitry provides 1 set of form "C" contacts (C, NO and NC) for each type of alarm (Major Bus A, Major Bus B and Minor-Ext). In the event of a fuse or external alarm, the proper relay will change states, providing a connection between the Normally Open "NO" and Common "C" terminals. The normally closed "NC" terminal will open to high impedance. The MINOR indicates an external ground input alarm (aka; bay or rack alarms). Ground activates the external alarm inputs.

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

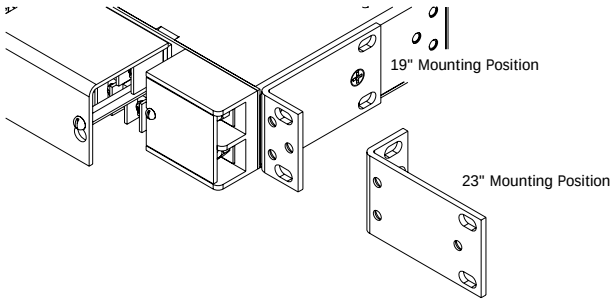


Figure 4.2.1

4.3. Mount the fuse 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). A readily accessible disconnect is to be provided in the end use installation.

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 Figure 4.4.1)

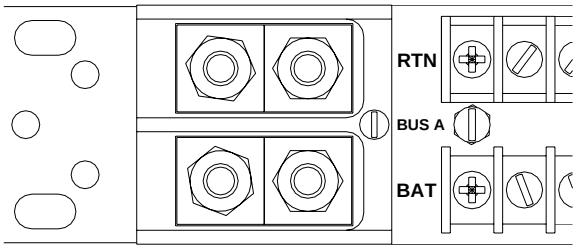


Figure 4.4.1

4.5. The battery outputs ("BAT") are available at the terminal blocks (#6 screw, up to 10awg fork) on the front of the panel. Each fuse position is numbered and that circuit is available at the terminal block position with the same number. (See Figure 4.5.1)

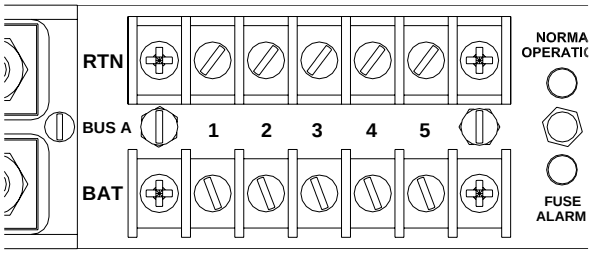


Figure 4.5.1

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. (See Figure 4.5.1)

4.7. This panel has MAJOR Bus A, MAJOR Bus B and MINOR External alarms. Each alarm has common (C), normally open (NO) and normally closed (NC) alarm contact. The Minor External Input Alarm is used for alarms that originate outside the panel (bay alarms). A ground signal is supplied from another device in the bay to activate this alarm. 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. Westell recommends you fuse the alarm battery supply (ABS) to 1A or less to protect the alarm wiring and circuitry.

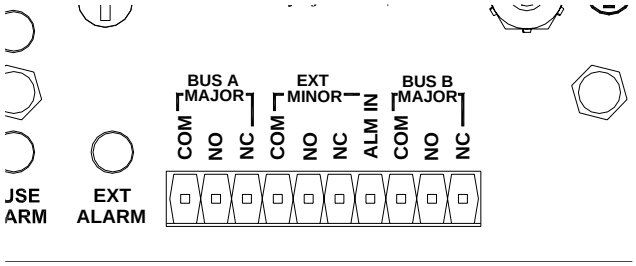


Figure 4.7.1

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 the front of the chassis (#10 screw torque; 2 ft-lbs or 2.7Nm) See Figure 4.8.1

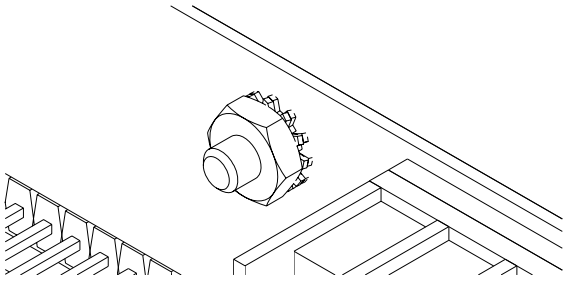


Figure 4.8.1

4.9. Power up the panel by installing the distribution fuses supplying the panel. (Maximum 50A rated fuse to each input.) 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 "MAJOR" alarm extension relay should change states to extend the alarm. If you wish to verify the externally activated alarm you can connect

a GND to the External Alarm In, and the External Alarm LED should light and the MINOR External alarm extension relay should change states to provide the alarm extension.

4.11. Install panel output distribution GMT fuses, with fuse covers on each, 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. Be careful not to overload the panel bus or BDFB fuse position rating supplying the panel.

NOTE: If fuse size is not specified in the equipment manual, fuses should be selected with a rating of 150% of the maximum current draw of the equipment on that circuit. When installing fuses, the sum of the fuses installed in each bus should not exceed the bus rating (50 Amps) or input fuse rating.

5. SPECIFICATIONS

5.1. Voltage	-/+24 or -/+48 VDC Typical -/+22 to -/+58 VDC Max.	5.11. Relay output	2 Amps/58Vdc max
5.2. Current/Fuse	15 Amps Maximum	5.12. Relay activation	Gnd, 20mA max.
5.3. Current/Bus	50 Amps Maximum	5.13. Dimensions	1.75H, 17W, 5.82D (excluding brackets)
5.4. Current/Panel	100 Amps Maximum	5.14. Rack Mounting	19” and 23” Racks uses one 1.75” Panel Spaces
5.5. Output Fuse	GMT Style Fuse Holders		
5.6. Output/Bus	5 Fuses (10 per panel)		
5.7. Output/Panel	2 Busses per Panel	5.15. Weight	Appx 8 Lbs
5.8. Input Block	Two ¼” Stud on 5/8 center	5.16. Operating Temp.	-40° to +65°C (-40° to +149°F)
5.9. Output Block	#22 AWG to 12 AWG wire Or fork/ring for #6 screw, 10awg forks/rings will work	5.17. Storage Temp.	-40° to +70°C
		5.18. Color	Off White
5.10. Alarm Block	0.045” sq wire wrap pins	5.19. Short Circuit Interrupt Rating:	450 Amps

NOTE: If fuse size is not specified in the equipment manual, fuses should be selected with a rating of 1.5 times the maximum current draw of the equipment on that circuit. (Under normal conditions, the load current should not exceed 66% of the fuse rating.) Do not exceed the Bus rating with the sum of the fuse ratings. Each bus supply fuse/breaker should be sized at 50Amps maximum.

Compatible lugs for Input Block

(2 hole compression lugs for 1/4” studs on 5/8” centers (torque 5.5ft-lbs)).

Cable Size	T & B	Burndy	Panduit
#8	542040410	YA8CL2TC14	LCD8-14A
#6	54205	YA6CL2TC14	LCD6-14A
#4	54206	YA4CL2TC14	LCD4-14A
#2	54207	YA2CL2TC14	LCD2-14A

Westell suggests you heat shrink the barrels of the compression lugs for added safety.

6. TECHNICAL SERVICES

6.1 If technical or customer assistance is required, contact Westell by calling or using one of the following options:

Voice: (800) 377-8766
email: global_support@westell.com

For additional information about Westell, visit the Westell World Wide Web site at http://www.Westell.com.

6.2 This equipment is identified by a model number ie. NPTFD1009. Be sure to have the model number and serial number available when making inquiries about the equipment.

7. WARRANTY & REPAIRS

7.1 Westell warrants this product to be free of defects at the time of shipment. Westell also warrants this product to be fully functional for the time period specified by the terms and conditions governing the sale of the product. Any attempt to repair or modify the equipment by anyone other than an authorized Westell representative will void the warranty.

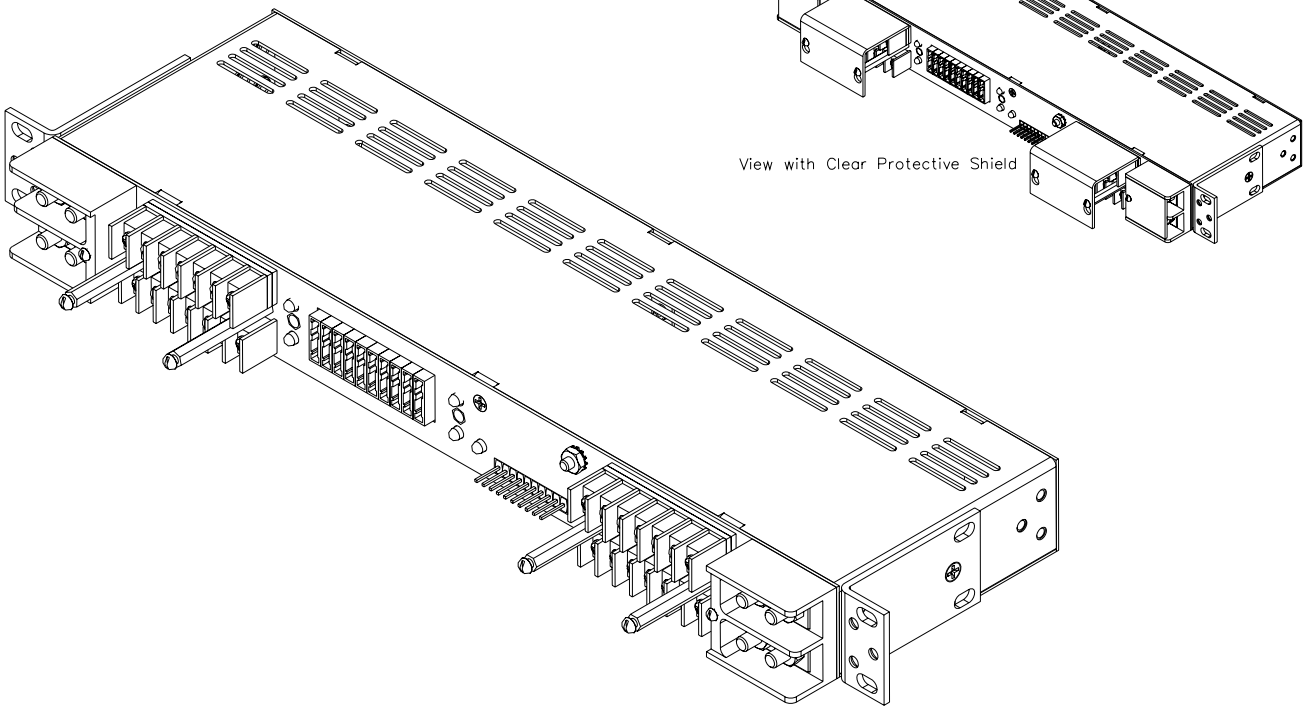
7.2 Westell will repair or replace any defective Westell equipment without cost during the warranty period if the unit is defective for any reason other than abuse, improper use, or improper installation. To return defective equipment, first request a Return Material Authorization (RMA) number from Westell by calling or emailing (Customer Service) at the address below.

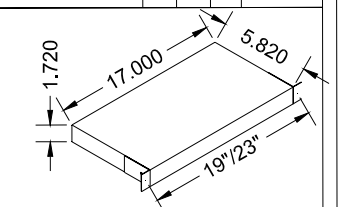
Once an RMA number is obtained, return the defective unit (freight prepaid), along with a brief problem description, to the address we will provide to you when you contact us.

email: rgmdept@westell.com
Voice: (800) 377-8766

Replacements will be shipped in the fastest manner consistent with the urgency of the situation. Westell will continue to repair or replace faulty equipment beyond the warranty period for a nominal charge. Contact Westell for details.

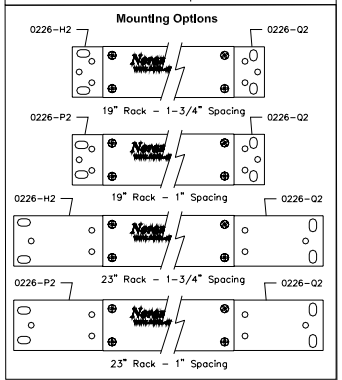
REV	Qty	Description or Release Note	ECN	CKD	APD	DATE
A		Original	661			17 Apr 08
B		update to show lexan and silk	670			

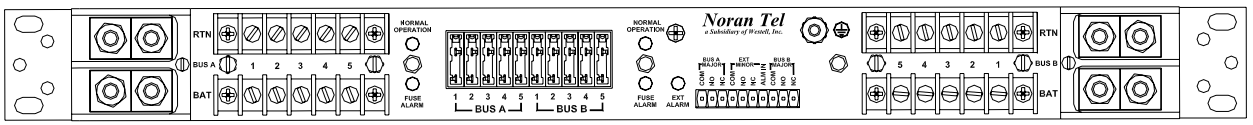




- Volume = 170.177 in^3
  = .098 ft^3
- Uses one Rack Space
- Reversable brackets allow panel to be mounted in 19" or 23" rack.

Panel Footprint





Noran Tel

N250110-N/0803
Complete Panel
Illustration Drawing

Drawing Number:	Rev:	Drawn with:	Computer File:
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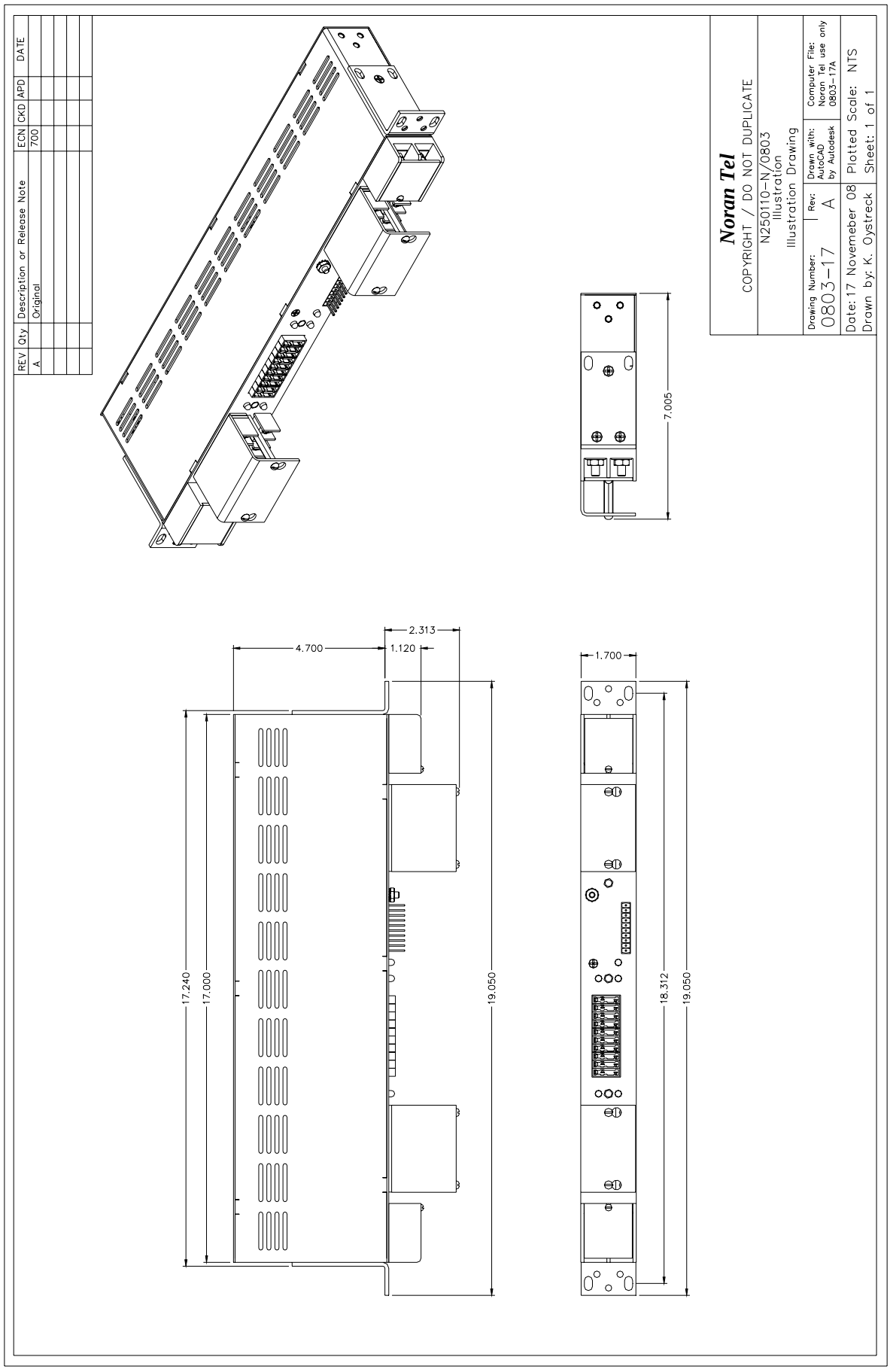
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COPYRIGHT / DO NOT DUPLICATE
N250110-N/0803
Illustration
Illustration Drawing
Drawing Number: 0803-17 | Rev: A
Drawn with: AutoCAD by Autodesk
Computer File: Noran Tel use only 0803-17A
Date: 17 Novemeber 08
Drawn by: K. Oystreck
Plotted Scale: NTS
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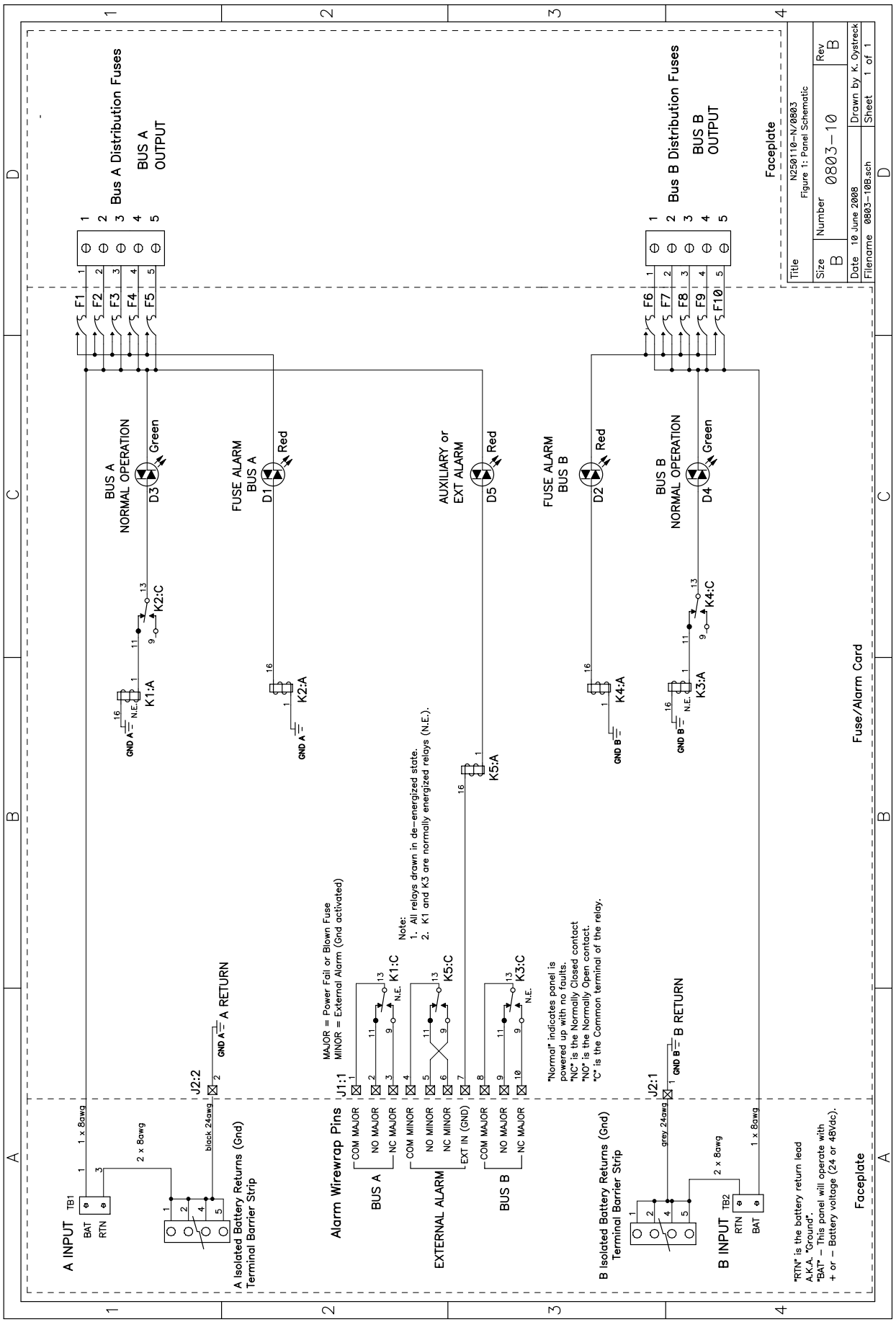
A INPUT
TB1
BAT
RTN
1 x 8awg
2 x 8awg
A Isolated Battery Returns (Gnd)
Terminal Barrier Strip
J2:2
black 24awg
GND A
A RETURN
Alarm Wirewrap Pins
J1:1
MAJOR = Power Fail or Blown Fuse
MINOR = External Alarm (Gnd activated)
BUS A
COM MAJOR
NO MAJOR
NC MAJOR
K1:C
N.E.
EXTERNAL ALARM
COM MINOR
NO MINOR
NC MINOR
EXT IN (GND)
K5:C
BUS B
COM MAJOR
NO MAJOR
NC MAJOR
K3:C
Note:
1. All relays drawn in de-energized state.
2. 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.
B Isolated Battery Returns (Gnd)
Terminal Barrier Strip
J2:1
grey 24awg
GND B
B RETURN
B INPUT
TB2
RTN
BAT
2 x 8awg
1 x 8awg
"RTN" is the battery return lead
A.K.A. "Ground".
"BAT" – This panel will operate with
+ or – Battery voltage (24 or 48Vdc).
Faceplate
BUS A
NORMAL OPERATION
D3
Green
K1:A
K2:C
FUSE ALARM
BUS A
D1
Red
K2:A
AUXILIARY or
EXT ALARM
D5
Red
K5:A
FUSE ALARM
BUS B
D2
Red
K4:A
BUS B
NORMAL OPERATION
D4
Green
K3:A
K4:C
Bus A Distribution Fuses
F1
F2
F3
F4
F5
BUS A
OUTPUT
Bus B Distribution Fuses
F6
F7
F8
F9
F10
BUS B
OUTPUT
Faceplate
Fuse/Alarm Card
Title
N250110-N/0803
Figure 1: Panel Schematic
Size
B
Number
0803-10
Rev
B
Date
10 June 2008
Drawn by K. Oystreck
Filename
0803-10B.sch
Sheet
1 of 1