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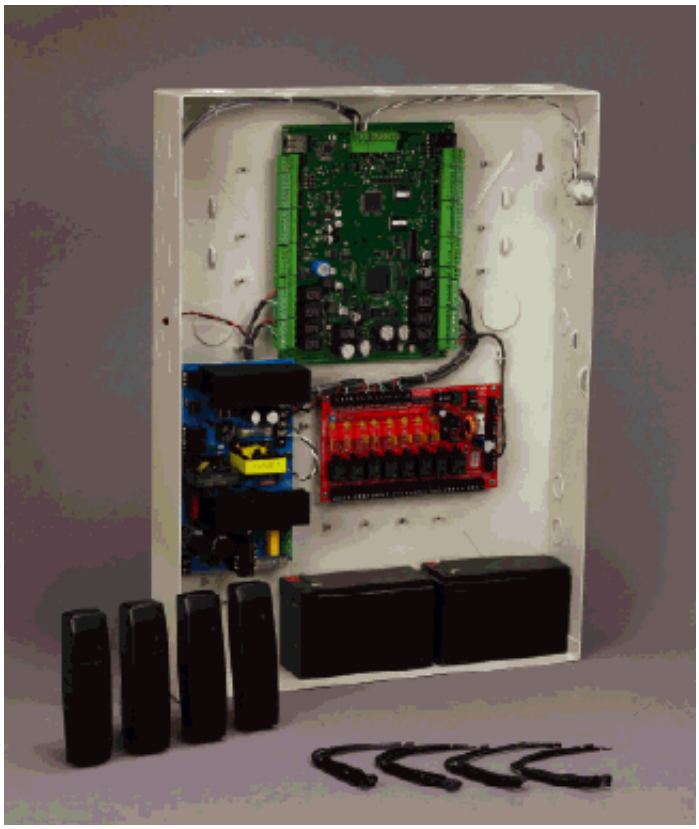

NetAXS™

NX4L1

Access Control Unit Installation Guide

Ordering Information

Please contact your local Honeywell representative or visit us on the web at www.honeywellaccess.com for information about ordering.

Feedback

Honeywell appreciates your comments about this manual. Please visit us on the web at www.honeywellaccess.com to post your comments.

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1.0 Notices

1.1 Warnings and Cautions

Warning: Fire Safety and Liability Notice: Never connect card readers to any critical entry, exit door, barrier, elevator or gate without providing an alternative exit in accordance with all fire and life safety codes pertinent to the installation. These fire and safety codes vary from city to city and you must get approval from local fire officials whenever using an electronic product to control a door or other barrier. Use of egress buttons, for example, may be illegal in some cities. In most applications, single action exit without prior knowledge of what to do is a life safety requirement. Always make certain that any required approvals are obtained in writing. Verbal approvals are not valid.

Warning: Honeywell never recommends using WIN-PAK or related products for use as a primary warning or monitoring system. Primary warning or monitoring systems should always meet local fire and safety code requirements. The installer must also test the system on a regular basis by instructing the end user in appropriate daily testing procedures. Failure to test a system regularly could make installer liable for damages to the end user if a problem occurs.

Warning: Earth ground all enclosures for proper installation.

Warning: Use suppressors on all door locks. Use S-4 suppressors for installation. Honeywell Access Systems (HAS) recommends only DC locks.

Warning: Personal injury or death could occur, and the equipment could be damaged beyond repair, if this precaution is not observed!

- Before installation, turn off the external circuit breaker which supplies power to the system, including door locks.
- Before connecting the device to the power supply, verify that the output voltage is within specifications of the power supply.
- Do not apply power to the system until after the installation has been completed.

Caution: If any damage to the shipment is noticed, a claim must be filed with the commercial carrier responsible.

Caution: Electro-static discharge (ESD) can damage CMOS integrated circuits and modules. To prevent damage always follow these procedures:

- Use static shield packaging and containers to transport all electronic components, including completed reader assemblies.
- Handle all ESD sensitive components at an approved static controlled workstation. These workstations consist of a desk mat, floor mat and an ESD wrist strap. Workstations are available from various vendors.

1.2 Product Liability, Mutual Indemnification

In the event that a Customer receives a claim that a Product or any component thereof has caused personal injury or damage to property of others, the Customer shall immediately notify Honeywell in writing of all such claims. Honeywell shall defend or settle such claims and shall indemnify and hold the Customer harmless for any costs or damages including reasonable attorneys' fees which the Customer may be required to pay as a result of the defective Product or the negligence of Honeywell, its agents or its employees.

The Customer shall hold harmless and indemnify Honeywell from and against all claims, demands, losses and liability arising out of damage to property or injury to persons occasioned by or in connection with the acts or omissions of the Customer and its agents and employees, and from and against all claims, demands, losses and liability for costs of fees, including reasonable attorneys' fees in connection therewith.

1.3 Limited Warranty

All Products sold or licensed by Honeywell Access Systems (HAS) include a warranty registration card which must be completed and returned to HAS by or on behalf of the end user in order for Honeywell to provide warranty service, repair, credit or exchange. All warranty work shall be handled through the Customer which shall notify Honeywell and apply for a Return Merchandise Authorization (RMA) number prior to returning any Product for service, repair, credit or exchange. Honeywell warrants that its Products shall be free from defects in materials and workmanship for a period of one year from date of shipment of the Product to the Customer. The warranty on Terminals, Printers, Communications Products and Upgrade kits is 90 days from date of shipment. Satisfaction of this warranty shall be limited to repair or replacement of Products which are defective or defective under normal use.

Honeywell's warranty shall not extend to any Product which, upon examination, is determined to be defective as a result of misuse, improper storage, incorrect installation, operation or maintenance, alteration, modification, accident or unusual deterioration of the Product due to physical environments in excess of the limits set forth in Product manuals.

THERE ARE NO WARRANTIES THAT EXTEND BEYOND THIS PROVISION. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. NO REPRESENTATION OR WARRANTY OF THE DISTRIBUTOR SHALL EXTEND THE LIABILITY OR RESPONSIBILITY OF THE MANUFACTURER BEYOND THE TERMS OF THIS PROVISION. IN NO EVENT SHALL HONEYWELL BE LIABLE FOR ANY RE-PROCUREMENT COSTS, LOSS OF PROFITS, LOSS OF USE, INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES TO ANY PERSON RESULTING FROM THE USE OF HONEYWELL PRODUCTS.

1.4 Federal Communications Commission

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or re-locate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The user shall not make any changes or modifications to the equipment unless authorized by the Installation Instructions or User's Manual. Unauthorized changes or modifications could void the user's authority to operate the equipment.

For panels using the Ethernet connection, the cable clamp (HAS part number 3-000342) must be used for the panel to pass the FCC Part 15 Class B requirements. See "Installation" on page 9 for clamp installation instructions.

1.5 Industry Canada

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Réglement sur le matériel brouilleur du Canada.

1.6 Underwriters Laboratories Incorporated

The NetAXS™ panel was reviewed by Underwriters Laboratories Incorporated for Access Control System Units - Category ALVY, UL294 standard. The NetAXS™ panel was reviewed as a stand alone system. The input points only monitor the door position. The NetAXS™ panel is not intended as a Proprietary Alarm Unit - Category APOU, UL1076 standard.

The NetAXS™ panel was reviewed using the following Honeywell readers: OmniAssure (TM) OT30, OmniClass (TM) OM40 and OM55, and OmniProx (TM) OP30 and OP40.

Notes:

- All field wiring, except for the AC power input and the battery backup/charger wiring, is Class 2 power-limited.
- Communication between panels other than the NetAXS panel has not been evaluated by UL.
- Underwriters Laboratories (UL) has reviewed only the configurations shown in Section 5.1, "RS-485 Connection via PCI-2" on page 31, Section 5.2, "RS-485 Connection via NetAXS™" on page 32, and Section 5.4, "RS-232 Connection" on page 35 of this guide. Because UL has reviewed the NetAXS panel only as a standalone system, the computer terminal, NetAXS gateway panel, and N-485_PCI-2 adapter appear in these sections only to illustrate the installation and programming of the NetAXS panel.
- UL has not evaluated the compatibility of downstream I/O devices (see Section 4.10, "Downstream I/O" on page 28) with the NetAXS panel.

2.0 Introduction

2.1 Access Control Overview

An access control system protects and preserves an enterprise's resources by providing authentication, authorization, and administration services. Authentication is a process that verifies a user's identity. If the user is verified, the system then either grants or denies access to specific areas and resources. Administration includes the creation and modification of user accounts and access privileges.

An access control system consists of hardware and software, usually configured in a network environment over a standard network protocol. Access control units, readers, door strikes, and video and other devices, for example, are configured to control and monitor the access to a company site.

2.2 NetAXS™ Access Overview

A NetAXS™ access control system consists of a host system and NetAXS™ access control units that meet existing N-1000-III/IV specifications and that communicate with each other and with a variety of input and output devices over the RS-232 and RS-485 network protocols. See "System Configuration" on page 31 to view illustrations of the supported NetAXS™ system configurations. A NetAXS™ access control system is configured and maintained via either the host system or a web server using RS-232, RS-485, or Ethernet network protocols.

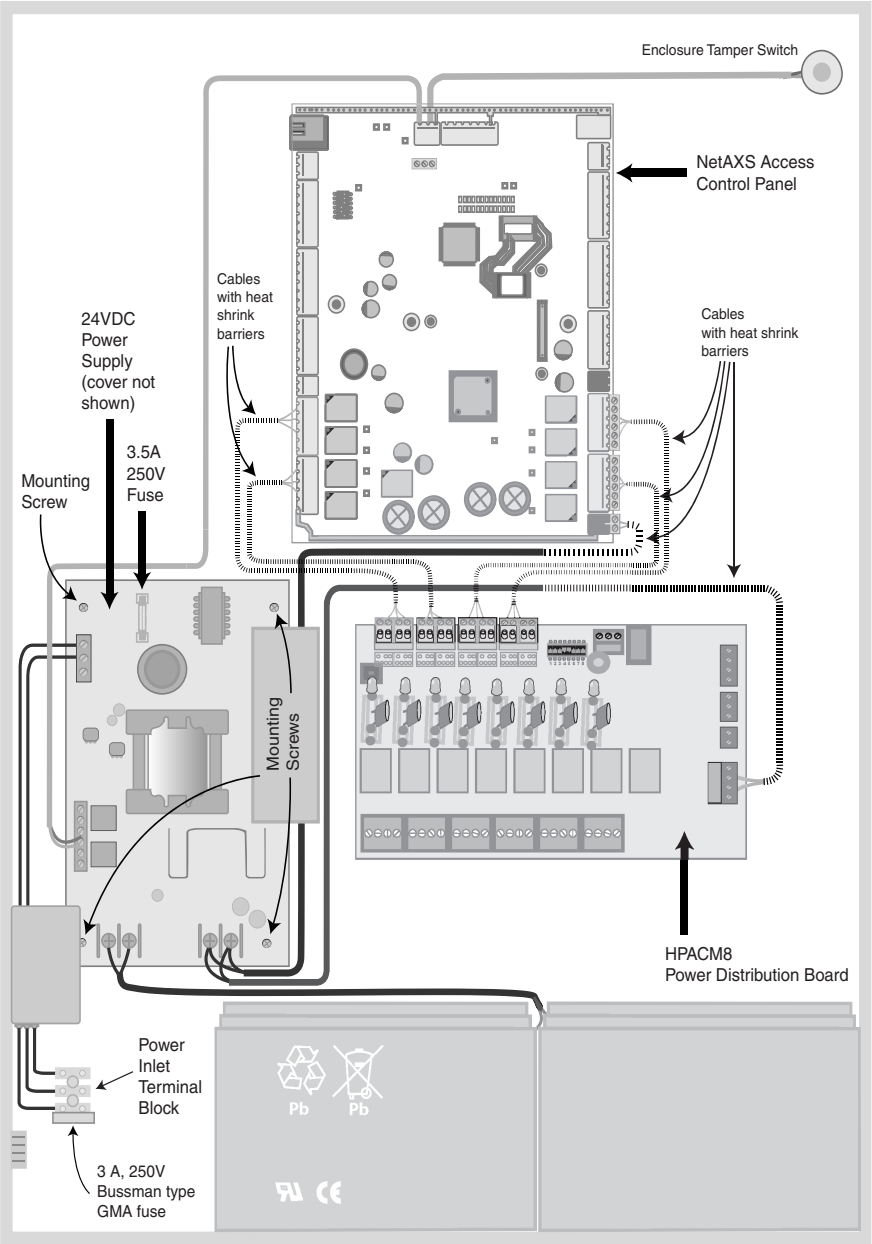
This document describes how to install and configure the NX4L1 access control unit.

3.0 Panel Components and Descriptions

The NX4L1 access control unit consists of a NetAXS panel control board, a power distribution module, a power supply, and batteries. The components are enclosed in a pre-wired cabinet. The 24V power supply provides power for the panel control board, which is a four-reader panel providing access control for up to four doors. The control board is overridden in cases of fire emergency by the HPACM8 Power Distribution Board.

The following figure shows the NX4L1 panel components.

Figure 1: NX4L1 Panel Components



Note: Maintain at least a .25-inch distance between the non-power limited wiring (115 VAC/60 Hz input wiring, power line filter wiring, 24 VDC wiring, battery backup/charger wiring, and battery-to-battery wiring) and all other wiring, which is power-limited Class 2 wiring.

3.1 NetAXS™ Access Control Unit

The NetAXS™ panel is a four-reader board that controls up to four doors by providing up to 14 inputs and 8 outputs. The NetAXS panel may be used as a stand-alone panel with independent card and transaction storage or, with a host software upgrade, as a fully monitored online access control device. The NetAXS panel also supports up to 30 downstream panels in a variety of network configurations. See Communications, page 21, for descriptions and illustrations.

Fourteen inputs are capable of four state supervision: Normal, Alarm, Short and Open. Eight inputs are used as door control with one input used for request to exit on each door and one input used for door status on each door. Supervised inputs for Tamper, External Power Fail and four Reader Tampers are supplied as well, and they can be used as additional inputs when not required for their default purpose.

Caution: The NetAXS board must not be used to power locks. Only through the relay board can the common power supply be used for the NetAXS™ and locking devices.

Real-Time Clock Protection

The panel RTC is backed up using a super capacitor. The super capacitor will power the real-time clock for one week in the absence of primary power or backup battery.

Memory Protection

The NetAXS™ panel continuously saves database and event information in non-volatile FLASH memory. This activity prevents the panel from losing data when power is lost.

Reader and AUX Power

Reader and AUX power is supplied at 12.4 VDC nominal with a maximum current distribution of
600 mA. The current can be distributed throughout the Reader Power or AUX Power in any configuration as long as the maximum draw is less than 600 mA: Reader 1 + Reader 2 + Reader 3 + Reader 4 + AUX Power < 600 mA.

Caution: AUX Power must not be used to power locks.

For NetAXS™ maximum current draw refer to panel specifications.

3.2 Power Supply

The NX4L1 uses an internal 115 VAC to 24 VDC regulated power supply (Altronix Model AL600ULXB). The supply uses 115 VAC, 60 Hz, 2 Amp input, and provides 24 VDC at 6 Amps for the system power. The supply also charges and monitors the condition of the batteries. Wire the unswitched electrical power to the supply per the National Electrical Code as well as any local electrical codes, including the safety ground wire.

An input power indicator is supplied, and it is illuminated when input voltage is present. If the indicator is off, the input voltage is off, or too low to operate the system.

Caution: De-energize the unit before servicing it. For continued protection against the risk of electric shock and fire hazard, replace the input fuse with the rating of 3.5A, 250V.

3.3 Batteries

For the NX4L1, two CASIL CA1270, 12 VDC, 7 AHr sealed lead-acud batteries (Honeywell order number 3-000066) wired in series must be used to have backup battery capabilitiy. The batteries will provide standby backup power, depending upon system configuration and activity. The batteries are wired in series (positive on one battery to negative on the other) and connected to the BATT + and BATT - terminals on the 24 VDC power supply in the NetAXS™ enclosure. When AC is lost, the power supply automatically switches to the backup batteries for continuous 24 VDC power. The power supply has deep discharge protection, and it can provide a Low Battery signal to the panel if it is connected to a supervised input on the NetAXS™ panel. Refer to the system wiring diagram for details. Replace the batteries every 2 to 2.5 years, or more often if the system has a high rate of backup use.

3.4 Enclosure

The enclosure is 450 mm (17.7 inches) wide, 607 mm (23.9 inches) high, 90 mm (3.54 inches) deep. The enclosure is shipped pre-wired.

3.5 Suppressors

Two suppressors (HAS number S-4) are required for each door lock. One suppressor is installed on the panel control board, and the second must be installed at the door lock.

4.0 Installation

Perform the following steps to install the NX4L1 panel:

Warning: Use a static strap whenever touching the panel to ensure protection from Electrostatic Discharge (ESD).

1. Review the panel layout, cable runs, and power needs.
2. Mount the enclosure at the proper location on the wall. Use appropriate anchors for the mounting material.
3. Run all I/O wires to the enclosure, and properly mark each wire for its use.
4. Run appropriate length three-wire cable to the enclosure power inlet terminal block. Ensure that the ground wire is properly grounded to earth. Note that an Optional Power Connection kit (HAS part number 100-00049) is available for the NX4L1 panel. To install the Power Connection option, see “Installing the Optional AC Inlet“ on page 10 for instructions. The power inlet terminal block can accommodate wire sizes up to 12 AWG. Wiring to a 20-amp branch circuit requires 12 AWG insulated copper wire. Wiring to a 15-amp branch circuit requires 14 AWG insulated copper wire. Connect the line, neutral, and earth ground wires to the appropriate terminal on the power inlet terminal block.

   Caution: Do not apply power at this time.

5. Remove each terminal plug one at a time to wire the properly labeled cables. See the wiring diagram (Figure 35 on page 52). Leave enough shield drain length to secure to the grounding stud. Also, maintain a distance of at least .25 inches between the non-power limited wiring (115 VAC/60 Hz input wiring, power line filter wiring, 24 VDC wiring, battery backup/charger wiring, and battery-to-battery wiring) and all other wiring, which is power-limited Class 2 wiring.

   Caution: Do not apply power at this time.

6. Connect the shield to the grounding studs.
7. Set DIP switch settings for the panel address (see Table 5 on page 27), and set J36 and J37 for communication termination and biasing (see “System Configuration“ on page 31 and “Jumper Settings“ on page 28).
8. Check all wiring at this time.

   Caution: Improper wiring can cause damage to the NetAXS™ at power up and result in a loss of warranty.

9. Apply power to the panel. The power-up sequence may take up to two minutes, after which the RUN LED blinks green. The RUN LED is located near Terminal Block (TB) 8. After the power-up sequence, check the LEDs to be sure the panel has powered up properly (see “LED Operation“ on page 47).
10. Configure the panel by following the instructions in the *NetAXS™ Access Control Unit User’s Guide.*

11. If you are using a battery backup function, place the two 7 A-Hr batteries in the enclosure with the battery terminals of each battery close to each other.
12. Attach the 4-inch Battery-to-Battery cable from the positive (red) terminal of one battery to the negative (black) terminal of the other battery. DO NOT CONNECT THE CABLE BETWEEN THE TERMINALS OF THE SAME BATTERY.
13. Attach the positive (red) Power Supply-to-Battery cable to the remaining positive (red) battery terminal.
14. Attach the negative (black) Power Supply-to-Battery cable to the remaining negative (black) battery terminal.
15. For panels using the Ethernet connection, the cable clamp (HAS part number 3-000342) must be used for the panel to pass the FCC Part 15 Class B requirements. Snap the clamp around any portion of the Ethernet cable that is inside of the enclosure.

4.1 Installing the Optional AC Inlet

Perform these steps to install the optional AC inlet (HAS part number 100-00049):

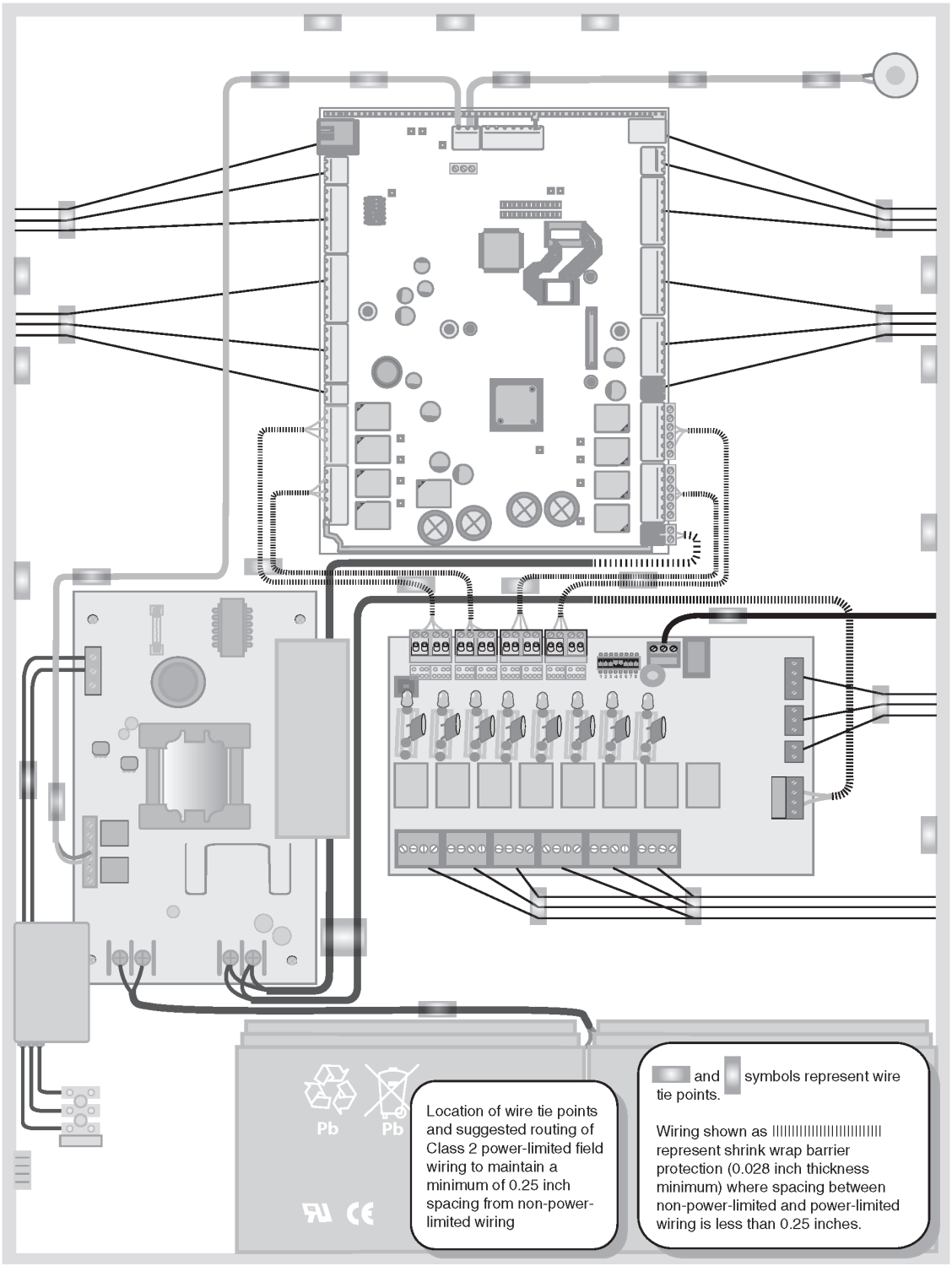
1. Remove the knockout piece at the lower-left side of the enclosure.
2. Feed the AC inlet assembly wires through the opening from the outside.
3. Push the receptacle straight in, until it snaps into place.
4. Connect each colored wire to its corresponding color on the terminal block.
5. Plug the AC inlet unit's power cord into the three-prong receptacle.
6. Plug the other end of the cable into a standard non-switched 115 VAC outlet.

Note: Use only a Yung Li YC-12 power cord (HAS part number 700-0109). UL has evaluated the use of this power cord with the optional AC inlet for the NX4L1. You can purchase this power cord from Honeywell.

4.2 Tying the Field Wiring in the NX4L1 Cabinet

Use the following figure as a guide to secure the field wiring in the NX4L1 cabinet.

Figure 2: Tying the Field Wiring in the NX4L1 Cabinet



4.3 Cabinet Mounting

The following five figures show the back, top, bottom, right, and left views of the NetAXS™ panel cabinet. Each view includes the dimensions and knockout placement that you will need to mount the cabinet. See Table 1 on page 16 for dimensions of the conduit entries into the cabinet.NetAXS™ Panel Cabinet, Back View

Figure 3: NetAXS™ Panel Cabinet, Back View

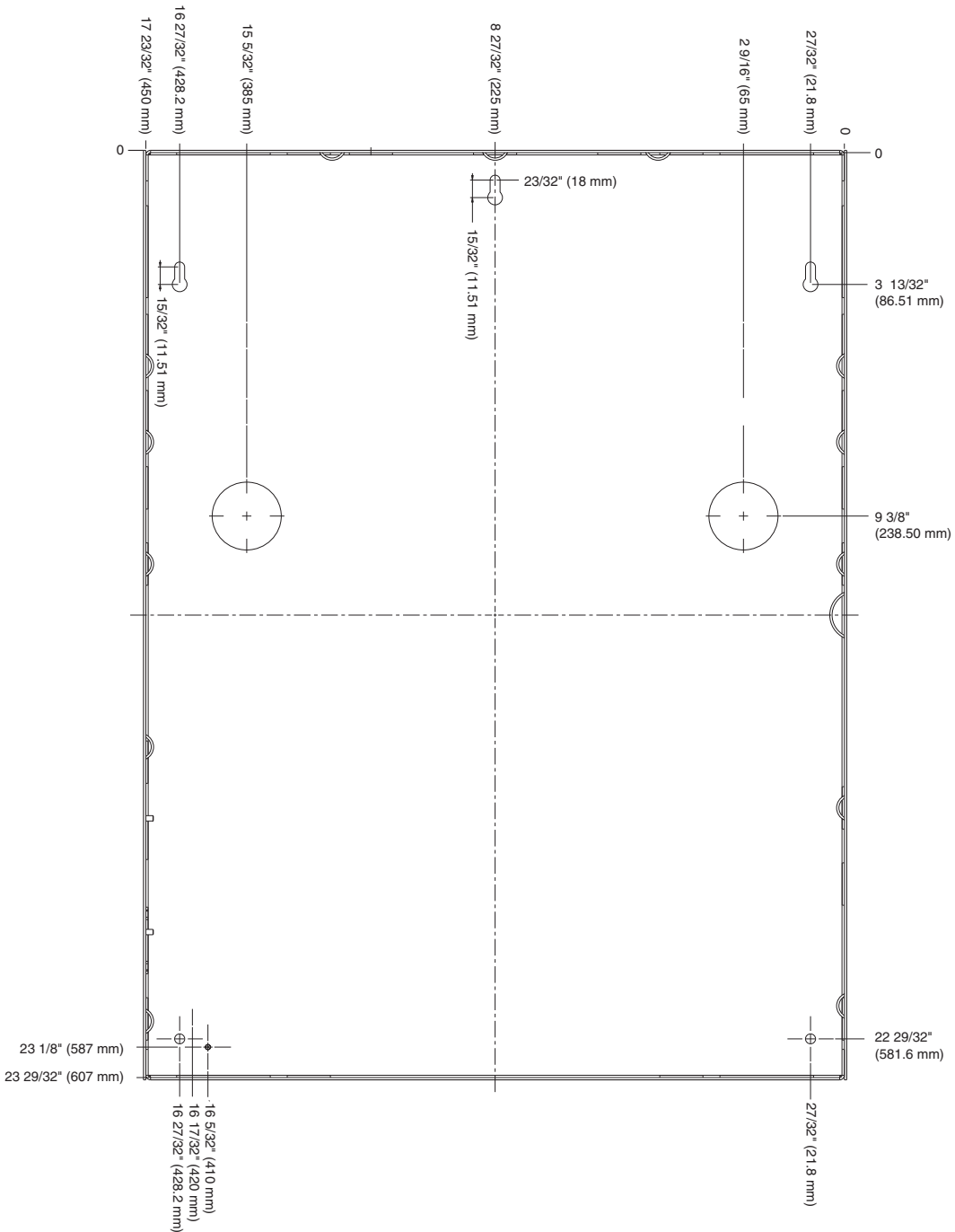


Figure 4: NetAXS™ Panel Cabinet, Top View

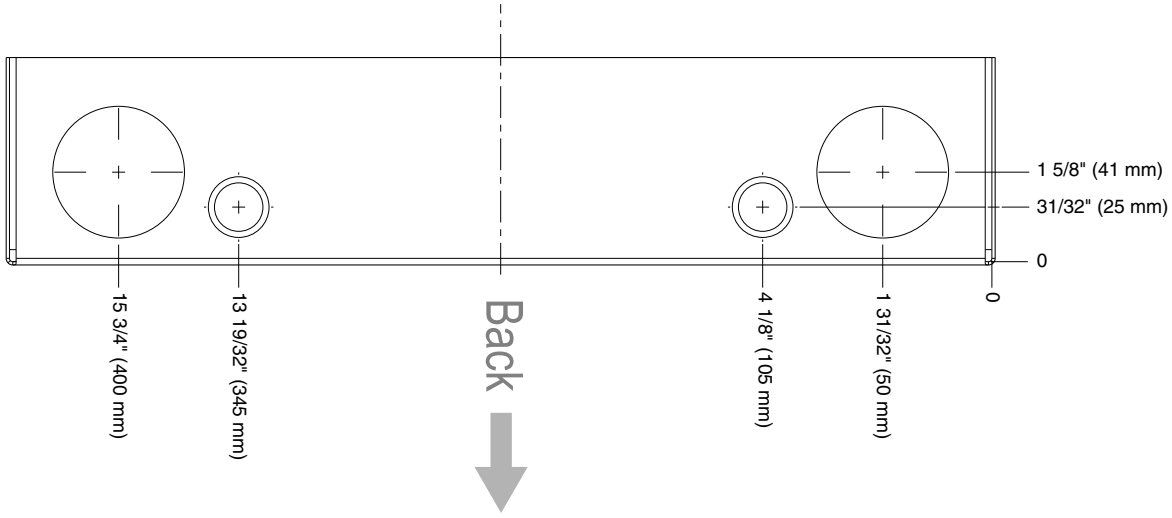


Figure 5: NetAXS™ Panel Cabinet, Bottom View

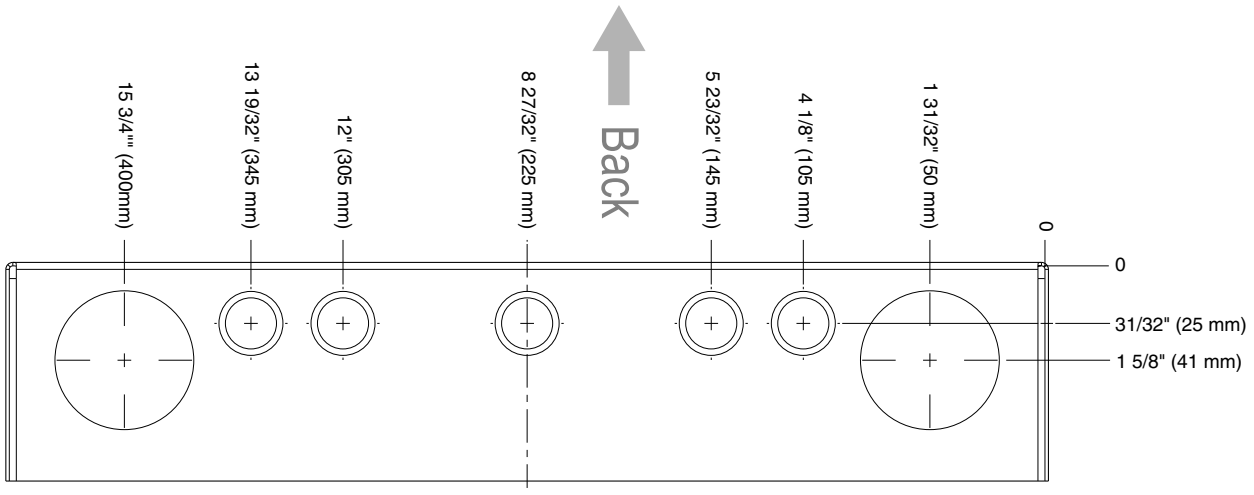


Figure 6: NetAXS™ Panel Cabinet, Left View

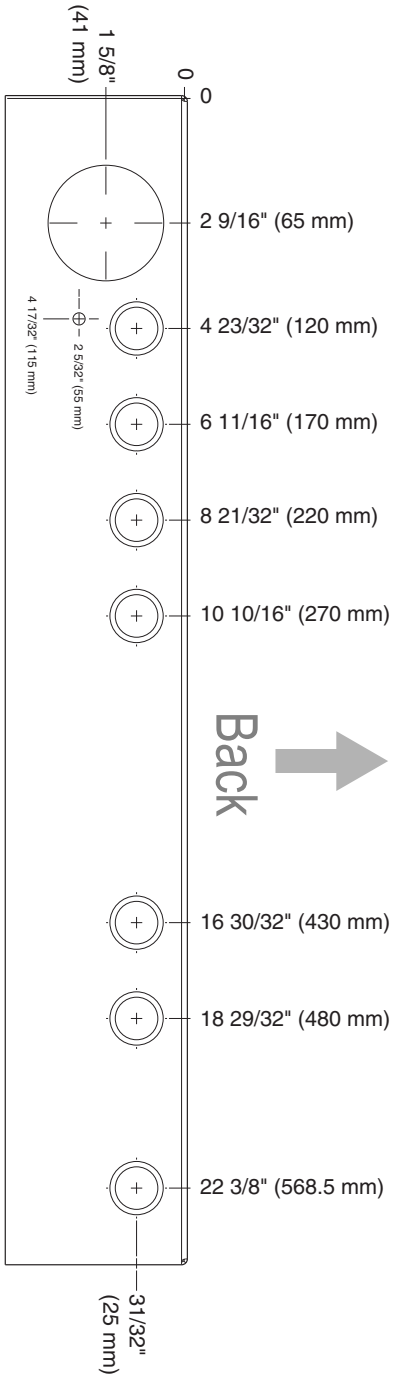


Figure 7: NetAXS™ Panel Cabinet, Right View

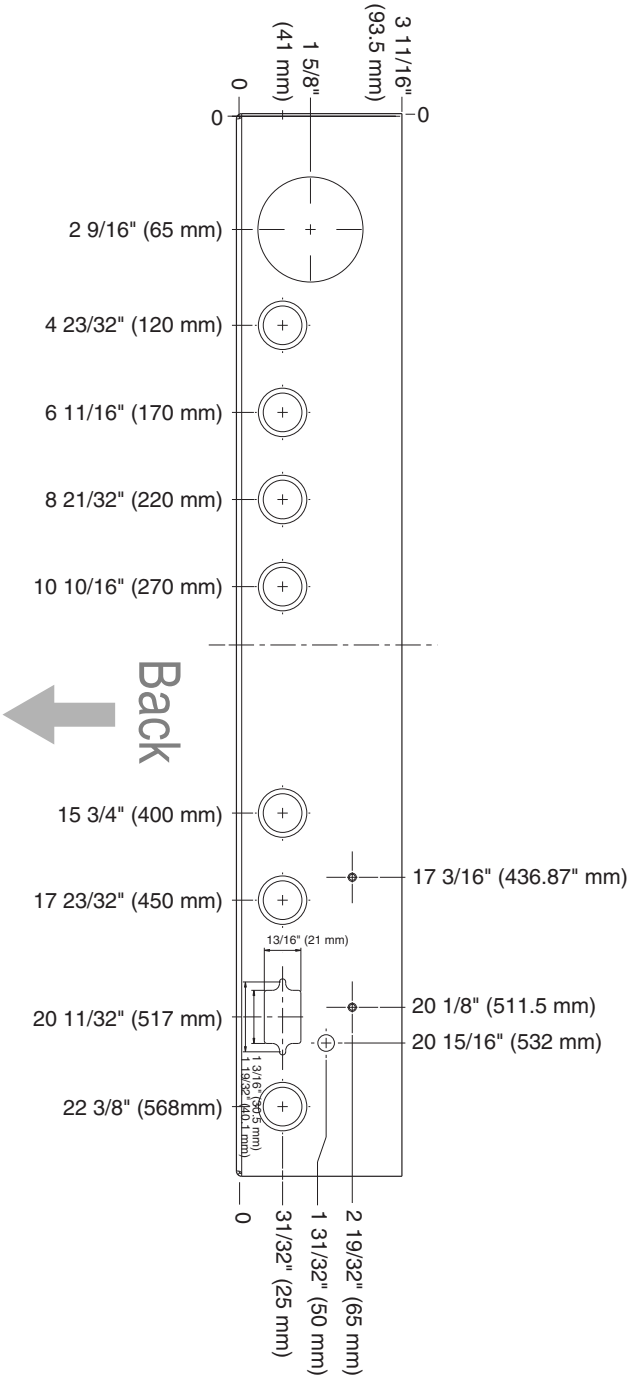


Table 1 lists the dimensions of the cabinet's conduit entries.

Table 1 Cabinet Electrical Entries

ENCLOSURE	CONDUIT 1/2" (12.7 mm)	CONDUIT 3/4" (19.0 mm)	CONDUIT 1" (25.4 mm)	CONDUIT 2" (50.8 mm)
Top	5	5	N/A	2
Bottom	2	2	N/A	2
Right Side	8	8	N/A	N/A
Left Side	6	6	N/A	N/A
Back	N/A	N/A	2	N/A

4.4 Reader Wiring

Each reader port supports a single 12-volt reader with Wiegand output format. Power to the readers is shared with the AUX Power ports TB3 and TB14. The maximum power draw is 600 mA for readers and AUX Power combined.

To fully utilize each reader port, a shielded 7-conductor cable (18-22 AWG) is required. If the optional reader buzzer feature is not needed, you can use the standard six-conductor cable (HAS part number NC1861-BL). The cable shield should be grounded at the panel only. Grounding at both ends can cause ground loops which can be disruptive. The maximum recommended length of wiring is 500 feet per reader.

Table 2 Reader Wiring

Terminal	Wire Color	Wiegand Reader
TB5-1, 6-1, 11-1, 12-1	Brown	LED Control
TB5-2 6-2, 11-2, 12-2	Green	Wiegand Data 0 or Data
TB5-3, 6-3, 11-3, 12-3	White	Wiegand Data 1 or Clock
TB5-4, 6-4, 11-4, 12-4	Black	Common
TB5-5, 6-5, 11-5, 12-5	Red	12VDC Power
TB5-6, 6-6, 11-6, 12-6	Variable	Tamper
TB5-7, 6-7, 11-7, 12-7	Variable	Buzzer

4.5 Supervised Input Wiring

The supervised inputs are located on TB4 and TB13 (Figure 8 on page 18). Input 1 through Input 8 may be configured for normally open or normally closed contacts as supervised or non-supervised. Inputs 13 and 14 are on TB8. All eight inputs have default functions, but they can be configured for general purpose inputs.

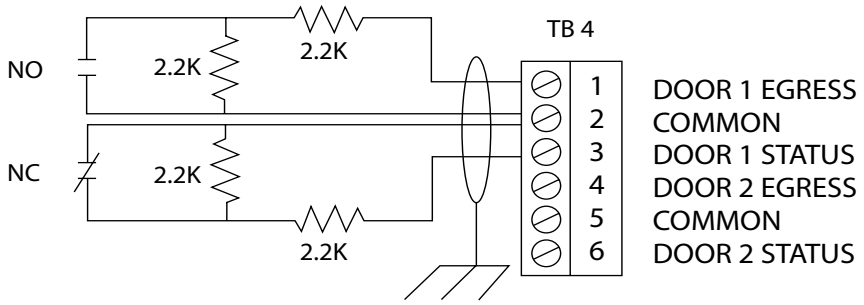
The following table identifies the default function for each terminal position.

Table 3 Default Supervised Input Assignments

Terminal Position	Default Function
TB4-1	Door 1 REX (Egress)
TB4-3	Door 1 Status
TB4-4	Door 2 REX (Egress)
TB4-6	Door 2 Status
TB8-1	External Power Supply AC FAIL
TB8-3	Panel Tamper
TB13-1	Door 3 REX (Egress)
TB13-3	Door 3 Status
TB13-4	Door 4 REX (Egress)
TB13-6	Door 4 Status
TB 5-6, 6-6, 11-6, 12-6	Optional supervised input if not used for a reader tamper

The following figure shows the typical wiring for a supervised input.

Figure 8: Typical Supervised Input Wiring Diagram



The figure above shows standard 2,200 ohm resistors. The NetAXS™ panel accepts 1,000, 2,200, 4,700, or 10,000 ohm values. Note that both resistors must have the same value. See the *NetAXS™ Access Control Unit User's Guide* for instructions on selecting resistor options.

In addition, the Tamper and External Power Fail, as well as the Reader and Panel tampers can be supervised and capable of being used as additional inputs if the default functionality is not needed. They also share a single common.

The wire used for the inputs should be shielded and cannot exceed 30 ohms over the entire length of the cable. Remember that the distance from the panel to the door must be doubled to determine the total resistance.

Caution: The cable shield should be grounded only at the panel earth ground. Grounding at both ends can cause ground loops which can be disruptive.

Caution: The system has not been verified for compliance with UL1076 Burglar Alarm units and systems.

4.6 NX4L1 Control Output Wiring

The NX4L1 provides a Power Distribution Output circuit board that is pre-wired to the eight relays on the control panel. Each panel relay controls the correspondingly numbered Power Distribution Output relay.

Relay 1 is defaulted for control of the Door 1 lock, Relay 2 is defaulted for the control of the Door 2 lock, Relay 3 is defaulted for the control of the Door 3 lock, and Relay 4 is defaulted for the control of the Door 4 lock. Relays 5-8 are used as auxiliary relays. Refer to the *NetAXS Access Control Unit User's Guide* for details on controlling the relay operations. The NX4L1 is wired to enable the internal nominal 24 VDC power supply to be used to power the access control door strikes/locks or other auxiliary loads. The voltage range of the relay outputs is 23.5 VDC to 25 VDC. If the application requires a separate supply, refer to the Power Distribution Output board installation manual for details.

Each Power Distribution Output relay has a 2 Amp Positive Temperature Coefficient (PTC)-protected output and a yellow indicator LED. The yellow LED illuminates if the PTC is active. Each relay also has a red indicator LED, which indicates the relay state. If the relay is active, the LED is illuminated.

For field wiring, attach the negative terminal of the load to the NEG output terminal of the Power Distribution Output relay. Attach the positive load terminal to either the Normally Open or Normally Closed terminal of the Power Distribution Output relay. Refer to Figure 9 on page 20 for a wiring example.

Caution: The cable used must be sized for the current load and should be shielded. The cable shield should be grounded at the panel only. Grounding at both ends can cause ground loops which can be disruptive. Do not bundle these wires with communication, reader, or supervised input wiring.

To minimize premature contract failure and increase system reliability, a contact protection circuit (HAS part number S-4) is highly recommended. Locate the protection circuit as close as possible to the load.

The Power Distribution Output board can be connected to an external Fire Alarm Control Panel (FACP). When the FACP input signal is active, it will turn off the selected relays on the Power Distribution Output board. An eight-position DIP switch is used to select which Power Distribution Output relays are affected by the FACP input. To make an output respond to the FACP input, move the associated DIP switch to the OFF position. To have the relay ignore the state of the FACP input, move the DIP switch to the ON position.

The Power Distribution Output board has a green LED that indicates the status of the external FACP input. The LED will turn on when the input is active and turn off when inactive.

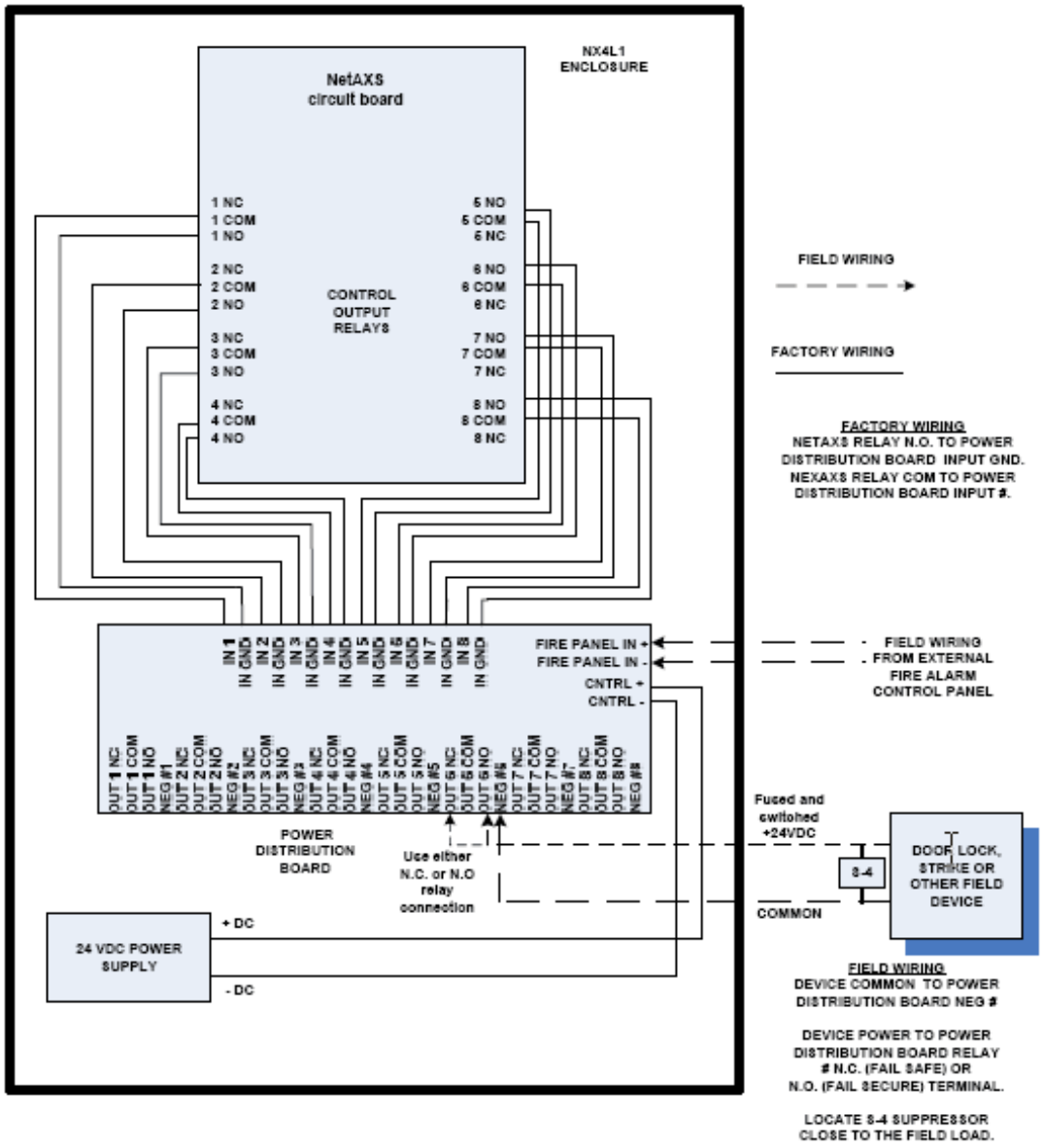
Table 4: NetAXS Relay and Power Distribution Board DIP Switch Associations

Default Function	NetAXS Board Relay	Power Distribution Output Board Relay	Power Distribution Output Board DIP Switch
Door 1	1	1	1
Door 2	2	2	2
Door 3	3	3	3
Door 4	4	4	4
Auxiliary	5	5	5
Auxiliary	6	6	6
Auxiliary	7	7	7
Auxiliary	8	8	8

The Power Distribution Output board has two dry contact outputs that can be used to monitor the general condition of the system. The TRBL relay output is de-energized if the +24 VDC is off or if a PTC is active. The FACP relay output will de-energize if the external FACP input is active. Either one of these outputs can be optionally wired into the supervised inputs on the NetAXS panel and configured as two-state inputs.

The following figure shows the power distribution board field wiring. Power Distribution Board Field Wiring

Figure 9: Power Distribution Board Field Wiring



4.7 Communications

Caution: Do not route communication wires with power or locking devices.

Note: Because UL has reviewed the NetAXS panel only as a standalone system, the computer terminal, NetAXS gateway panel, and N-485_PCI-2 adapter appear in this section's figures only to illustrate the installation and programming of the NetAXS panel.

RS-232 Communications

The NetAXS™ panel communicates with a PC through a 50-foot RS-232 cable (HAS part number CBL50). Connect the RJ45 end of the cable to the jack on the NetAXS™ panel.

The cable is used to provide communication to a single panel. A second cable can be used with another NetAXS™ control panel connected to a second COM (communication) port, which would enable eight readers to be used, see Figure 11, RS-232 Configuration.

Figure 10 illustrates the connections for an RS-232, DB9 (9 pin) connector to the panel's RJ-45 serial port. Replacement cables can be obtained by contacting your Honeywell Access System Representative.

Figure 10: RJ-45 Serial Port

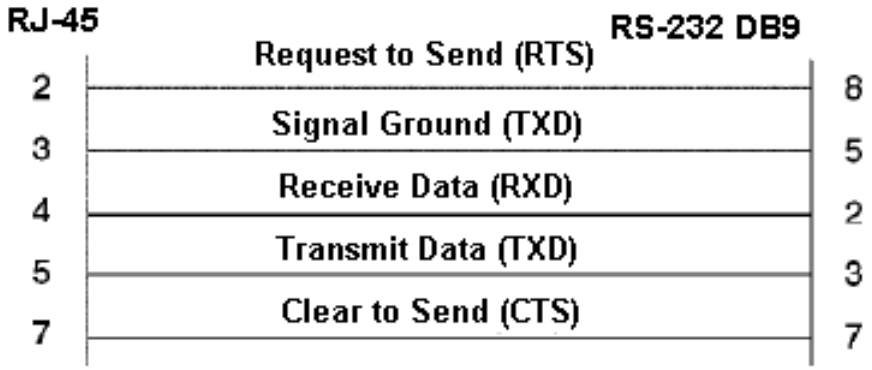
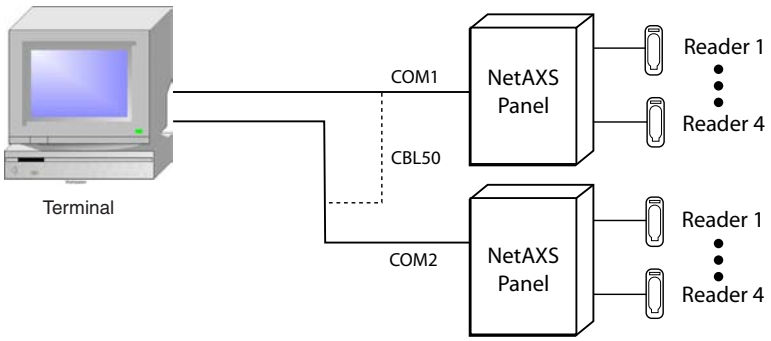


Figure 11: RS-232 Configuration



One NetAXS panel per COM port. Two COM ports possible.

RS-485 Communications

The NetAXS™ panel can reside on an existing RS-485 drop line hosted by either a NetAXS™ panel configured as a Gateway, or N-485-PCI-2, PCI-3, or N-485-HUB-2 (see Figure 12, Figure 13, and Figure 24). The interface allows the wiring of a Multidrop communication network of up to 4,000 feet (1200 m) in length. Only one host converter device per dropline is supported.

Note: On a Multidrop Line, the Gateway panel and the PCI unit can have either end-point or interior positions. See Figure 20 on page 33 and Figure 21 on page 34.

DIP switch position 6 on the NetAXS™ panel selects whether the panel is a Gateway or Multidrop panel. The switch in the OFF position configures the panel as a Multidrop panel; ON configures a Gateway. The panel must be power cycled for a new switch setting to be recognized. DIP switch positions 1-5 are used to select the panel's address on the network. Refer to Table 5 for DIP switch setting information.

Connectors J36 and J37 are provided for supplying biasing and end-of-line termination for the RS-485 network. The board ships with all jumpers open. For a Multidrop RS-485 Line, you must close both J36 and J37 (terminated and biased) at the two end-point panels. At all other panels, leave J36 and J37 open. Both jumpers on a given panel must set the same. Note that biasing and termination on both ends are present. Use the jumpers on both ends of the RS-485 network.

Note: If an RS-485 network has a NetAXS™ Gateway panel, no N1000-II, N1000-III, or N1000-IV are allowed on the same network. If they are added to a network with a NetAXS™ Gateway panel, they will not be able to communicate with the host computer.

Figure 12: RS-485 Configuration via N-485-PCI-2 or PCI-3

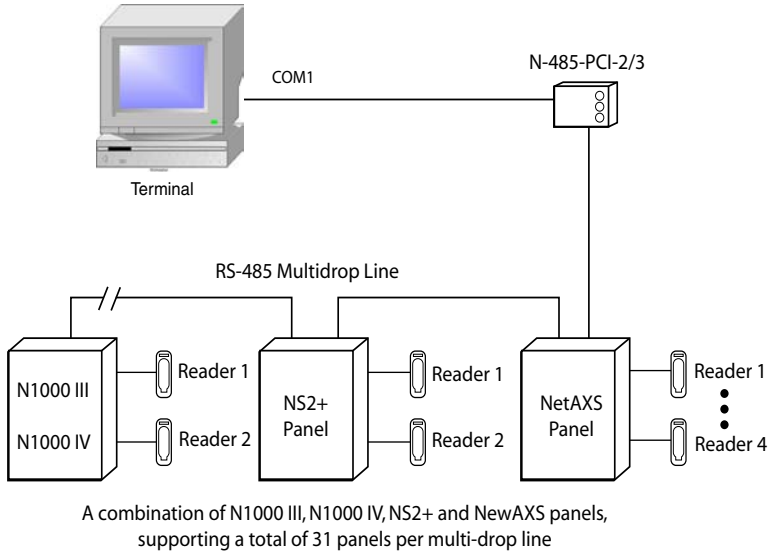
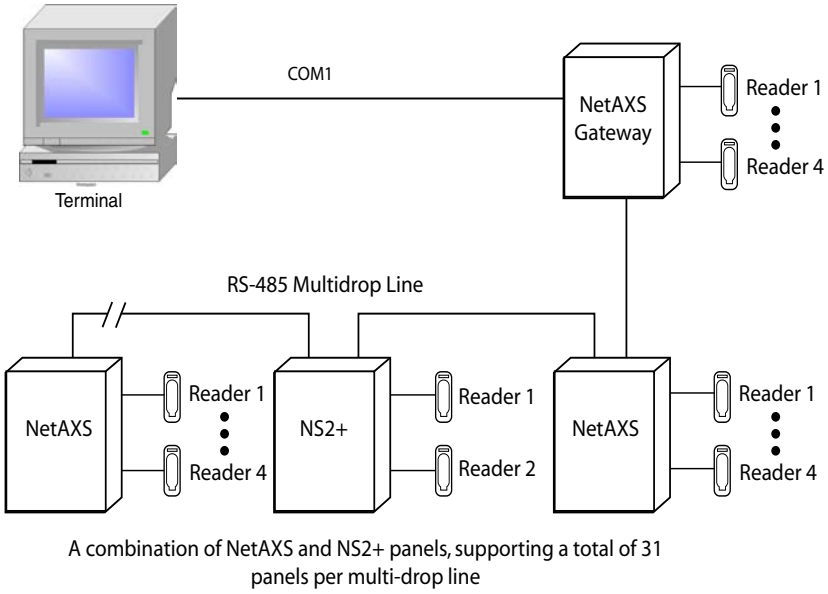
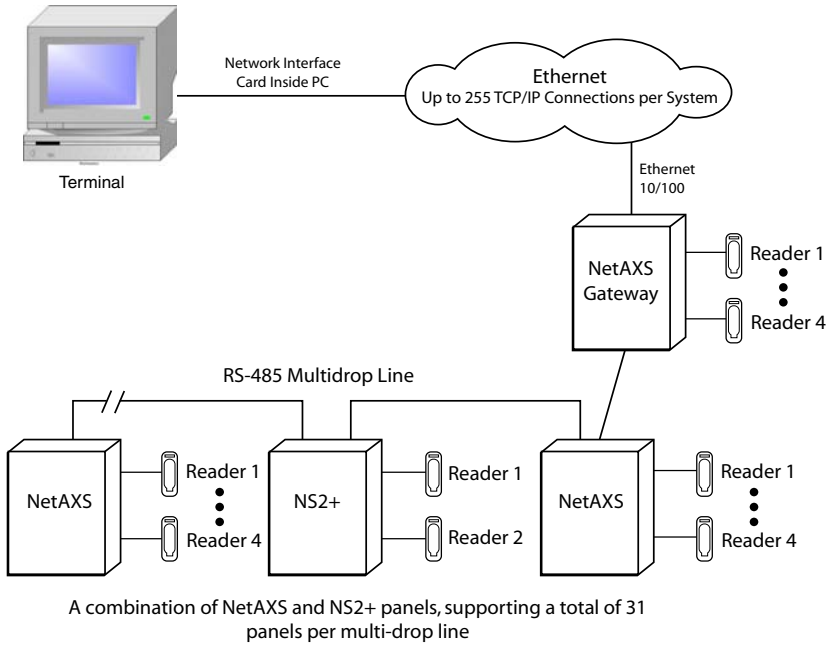


Figure 13: RS-485 Configuration via NetAXS™ Gateway



Ethernet TCP/IP Communications

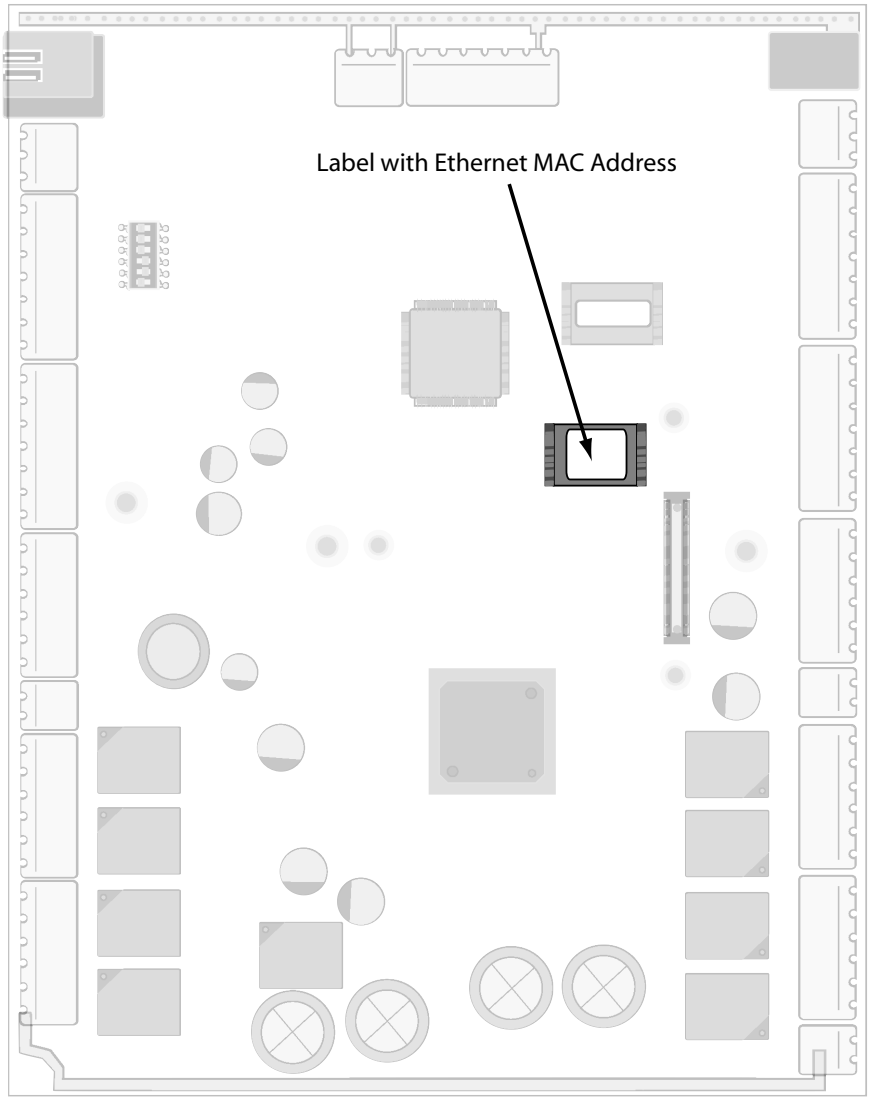
Figure 14: Ethernet TCP/IP Configuration



Each NetAXS™ panel has a port for an Ethernet TCP/IP interface (see Figure 14, Ethernet TCP/IP Configuration). The Ethernet TCP/IP interface provides 10/100 Mbit Ethernet support for each panel. Up to 31 panels can be configured on each TCP/IP connection.

Figure 15 shows the location of the panel's unique MAC ID.

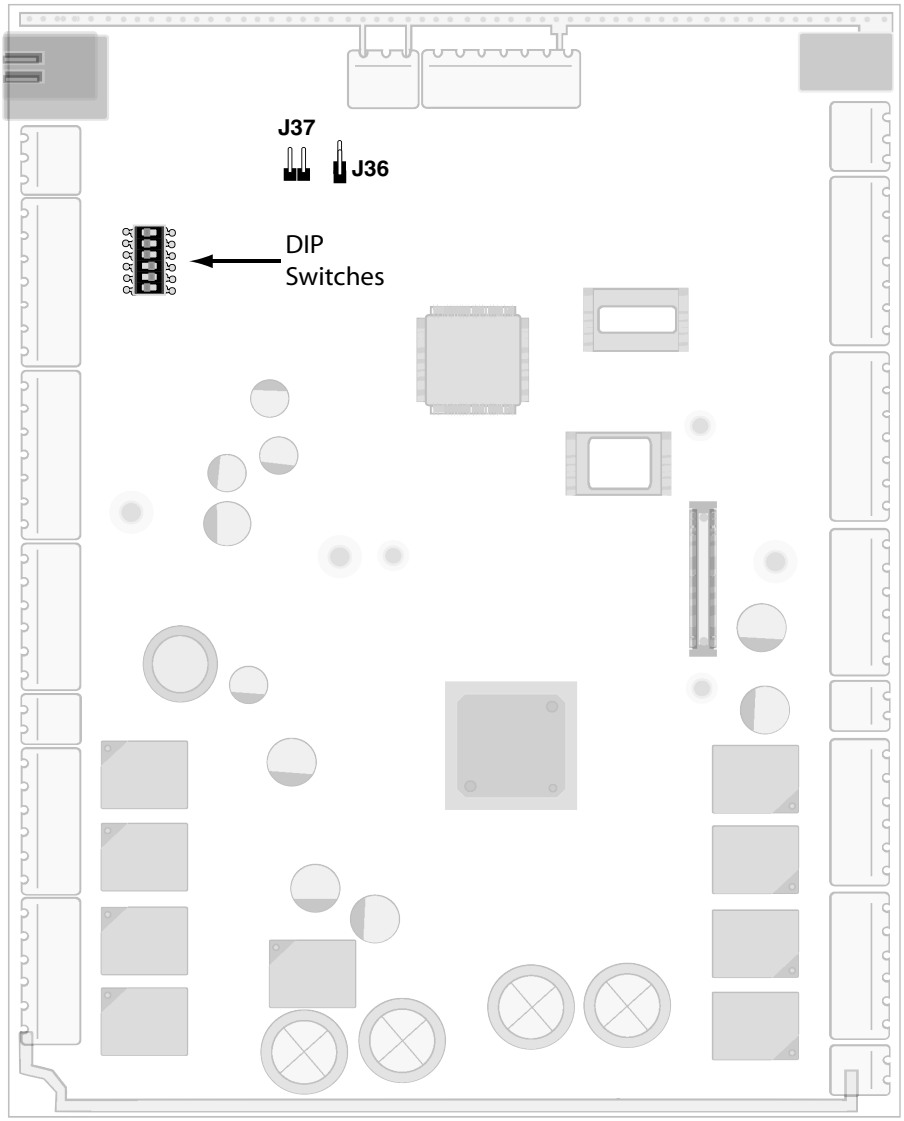
Figure 15: Ethernet MAC Address Location



4.8 DIP Switch Settings

Figure 16 locates the NX4L1 DIP switch panel and the J36 and J37 jumpers.

Figure 16: DIP Switch and Jumper Location



Use the following DIP switch configurations to set the panel address.

Table 5 DIP Switch Settings

S1	S2	S3	S4	S5	S6	Selection
on	off	off	off	off		Address 1 (default)
off	on	off	off	off		Address 2
on	on	off	off	off		Address 3
off	off	on	off	off		Address 4
on	off	on	off	off		Address 5
off	on	on	off	off		Address 6
on	on	on	off	off		Address 7
off	off	off	on	off		Address 8
on	off	off	on	off		Address 9
off	on	off	on	off		Address 10
on	on	off	on	off		Address 11
off	off	on	on	off		Address 12
on	off	on	on	off		Address 13
off	on	on	on	off		Address 14
on	on	on	on	off		Address 15
off	off	off	off	on		Address 16
on	off	off	off	on		Address 17
off	on	off	off	on		Address 18
on	on	off	off	on		Address 19
off	off	on	off	on		Address 20
on	off	on	off	on		Address 21
off	on	on	off	on		Address 22
on	on	on	off	on		Address 23
off	off	off	on	on		Address 24
on	off	off	on	on		Address 25
off	on	off	on	on		Address 26
on	on	off	on	on		Address 27
off	off	on	on	on		Address 28
on	off	on	on	on		Address 29
off	on	on	on	on		Address 30
on	on	on	on	on		Address 31
					off	NetAXS™ Multidrop
					on	NetAXS™ Gateway

Note: Address 0 is not a valid setting.

4.9 Jumper Settings

The NX4L1 panel control board includes jumpers 36 and 37, which set end-of-line termination and biasing for the Multidrop RS-485 Line.

The board ships with all jumpers set to OFF. For a Multidrop RS-485 Line, you must set both J36 and J37 to CLOSED (terminated and biased) at the two end-point panels. At all other panels, leave J36 and J37 at OPEN. Note that both jumpers on a given panel must either be OPEN or CLOSED.

4.10 Downstream I/O

Note: UL has not evaluated the compatibility of downstream I/O devices with the NetAXS panel.

In some applications, the number of system inputs or outputs exceeds the number that is standard on the NetAXS™ panel. The solution is to add a combination of MIRO-2/16 and MIRO-32/0 modules external to the NetAXS™ enclosure on a dedicated RS-485 Downstream Input/Output (I/O) bus. A maximum of two MIRO-32/0 and a maximum of four MIRO-2/16 for a total of six MIRO modules can be added to the downstream bus.

A MIRO-32/0 module has 32 supervised, four-state inputs that are limited to 2,200 ohms resistance. The MIRO-2/16 has two supervised inputs and 16 SPDT relay outputs; each input is limited to 2,200 ohms resistance. Refer to the individual installation manuals for I/O wiring details.

The downstream I/O bus is wired into the NetAXS™ TB10 terminal block. The downstream bus has a fixed baud rate and communicates to the MIRO modules using a polling technique.

Each MIRO module needs to have a unique address for proper communication. Each one also has some configuration jumpers that need to be positioned correctly.

The following table lists the DIP switch and jumper settings for the MIRO 32/0 and 2/16 modules.

Table 6 MIRO 32/0 DIP Switch and Jumper Settings

Module	Setting	Value
MIRO 32/0	DIP switches	Address (switches 1-6) - 1 or 2
		Baud rate (switches 7 and 8) - 7 = OFF, 8 = ON
		OP Mode (switches 9 and 10) - 9 = OFF, 10 = OFF

Table 6 MIRO 32/0 DIP Switch and Jumper Settings (continued)

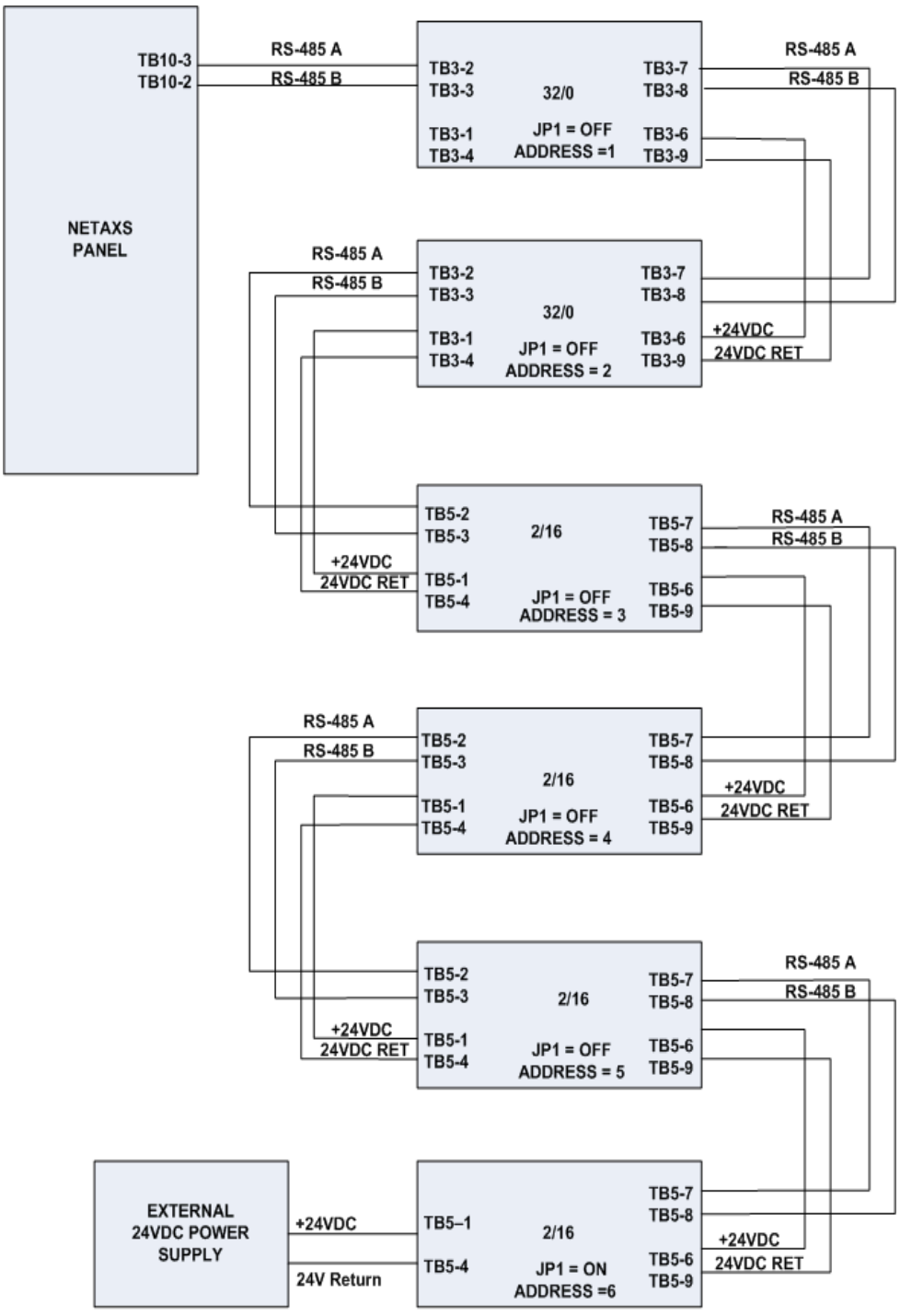
Module	Setting	Value
	Jumper settings	JP1 - CLOSED (if the module is the last module on the downstream bus), OPEN (if the module is not the last module on the downstream bus)
		JP2 - any setting
		JP3 - any setting
		JP4 - NORMAL (Positions 1 and 2)
MIRO 2/16	DIP switches	Address (switches 1-6) - 3 through 6
		Baud rate (switches 7 and 8) - 7 = OFF, 8 = ON
		OP Mode (switches 9 and 10) - 9 = OFF, 10 = OFF
	Jumper settings	JP1 - CLOSED, positions 2 and 3 (if the module is the last module on the downstream bus); OPEN, positions 1 and 2 (if the module is not the last module on the downstream bus)
		JP2 - NORMAL, positions 1 and 2

Note: If a MIRO 32/0 is not required in a system, start addressing the 2/16 modules at DIP switch 3. If a MIRO 32/0 is configured with an address other than 1 or 2, the NetAXS™ panel will not communicate with it. Likewise, if a MIRO 2/16 is configured with an address other than 3 through 6, the NetAXS™ panel will not communicate with it.

The NetAXS™ board and the NX4L1 is not intended to provide either module power or module output load power for downstream I/O. A separate 24 VDC supply should be used to provide power to all downstream modules and output loads. For some installations, the noise immunity improves if the NetAXS™ common is connected to the 24 V Return wiring for the downstream modules. This connection is not needed for most installations.

The following figure shows the default downstream I/O system configuration with communication and power wiring.

Figure 17: Default Downstream I/O Configuration with Wiring



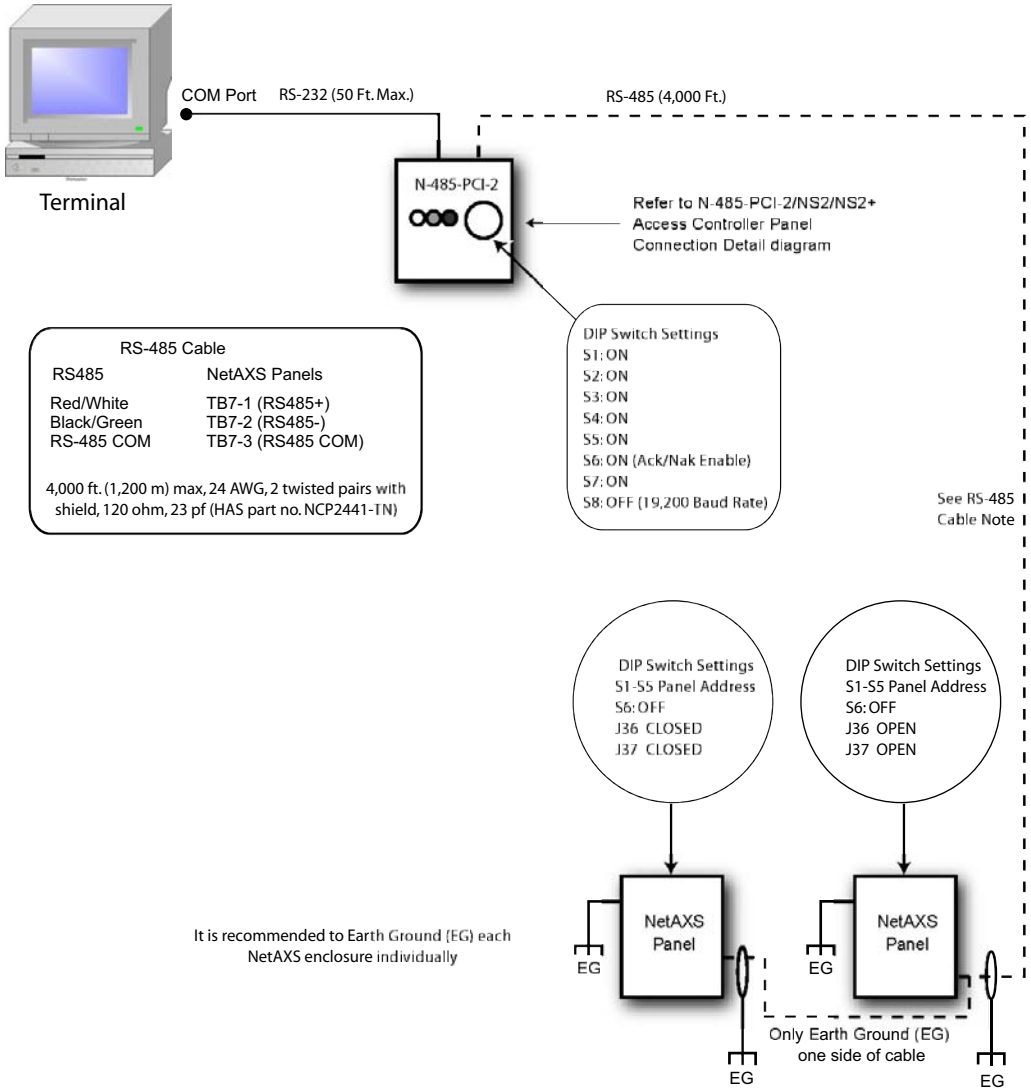
5.0 System Configuration

This section provides wiring diagrams for each of the NetAXS system configurations.

5.1 RS-485 Connection via PCI-2

This connection supports thirty-one NetAXS™ Access Controller panels for each drop line. It has been reviewed by Underwriters Laboratories Incorporated (UL). Note that PCI-2 units can also be wired in interior, as well as in endpoint, positions. See Figure 20 on page 33 and Figure 21 on page 34. Because UL has reviewed the NetAXS panel only as a standalone system, the computer terminal, NetAXS gateway panel, and N-485_PCI-2 adapter appear in these sections only to illustrate the installation and programming of the NetAXS panel.

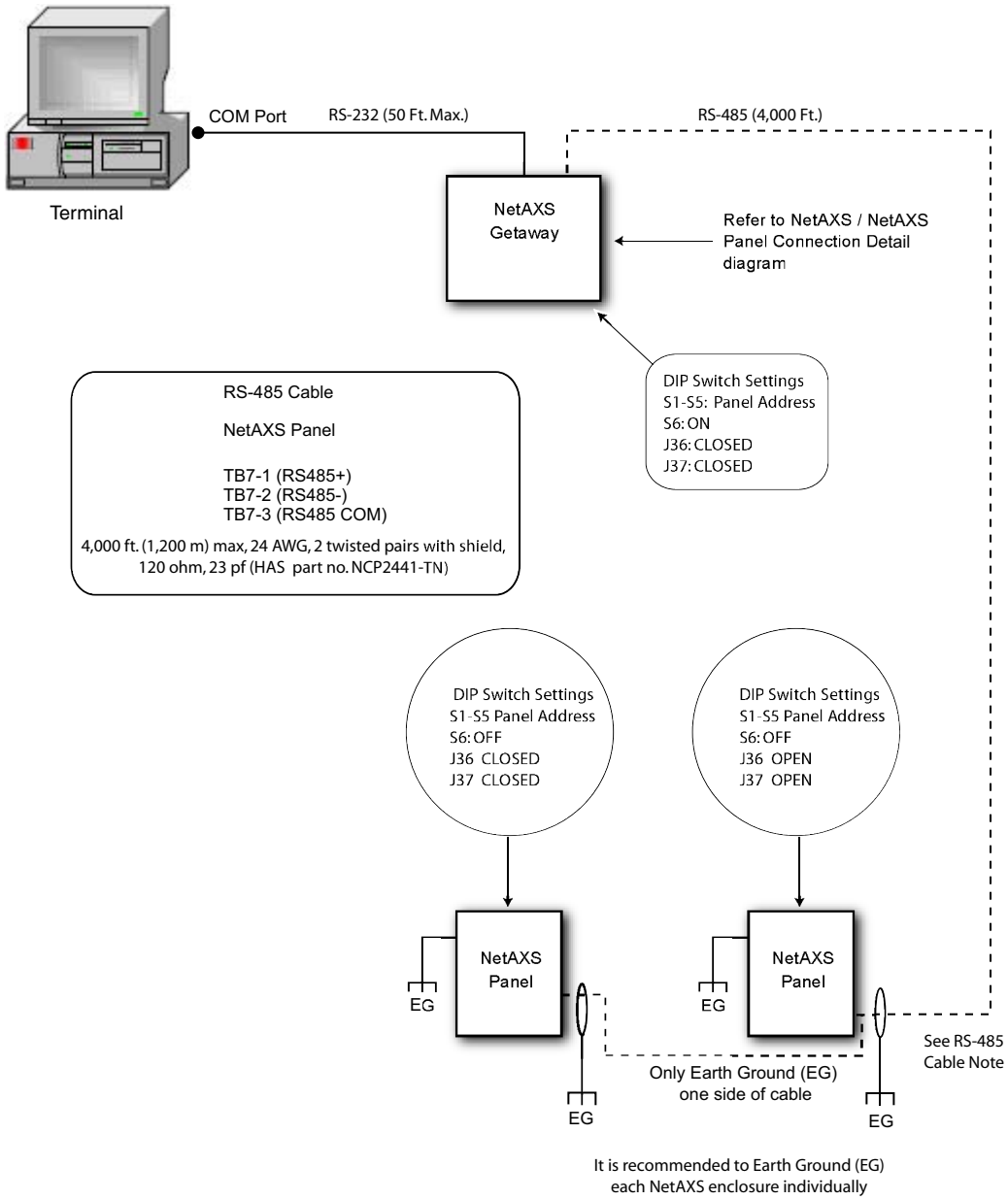
Figure 18: RS-485 Connection via PCI-2



5.2 RS-485 Connection via NetAXS™

This connection supports thirty-one NetAXS™ Access Controller panels for each drop line. It has been reviewed by UL. However, because UL has reviewed the NetAXS panel only as a standalone system, the computer terminal and NetAXS gateway panel appear in this illustraton only to show the installation and programming of the NetAXS panel.

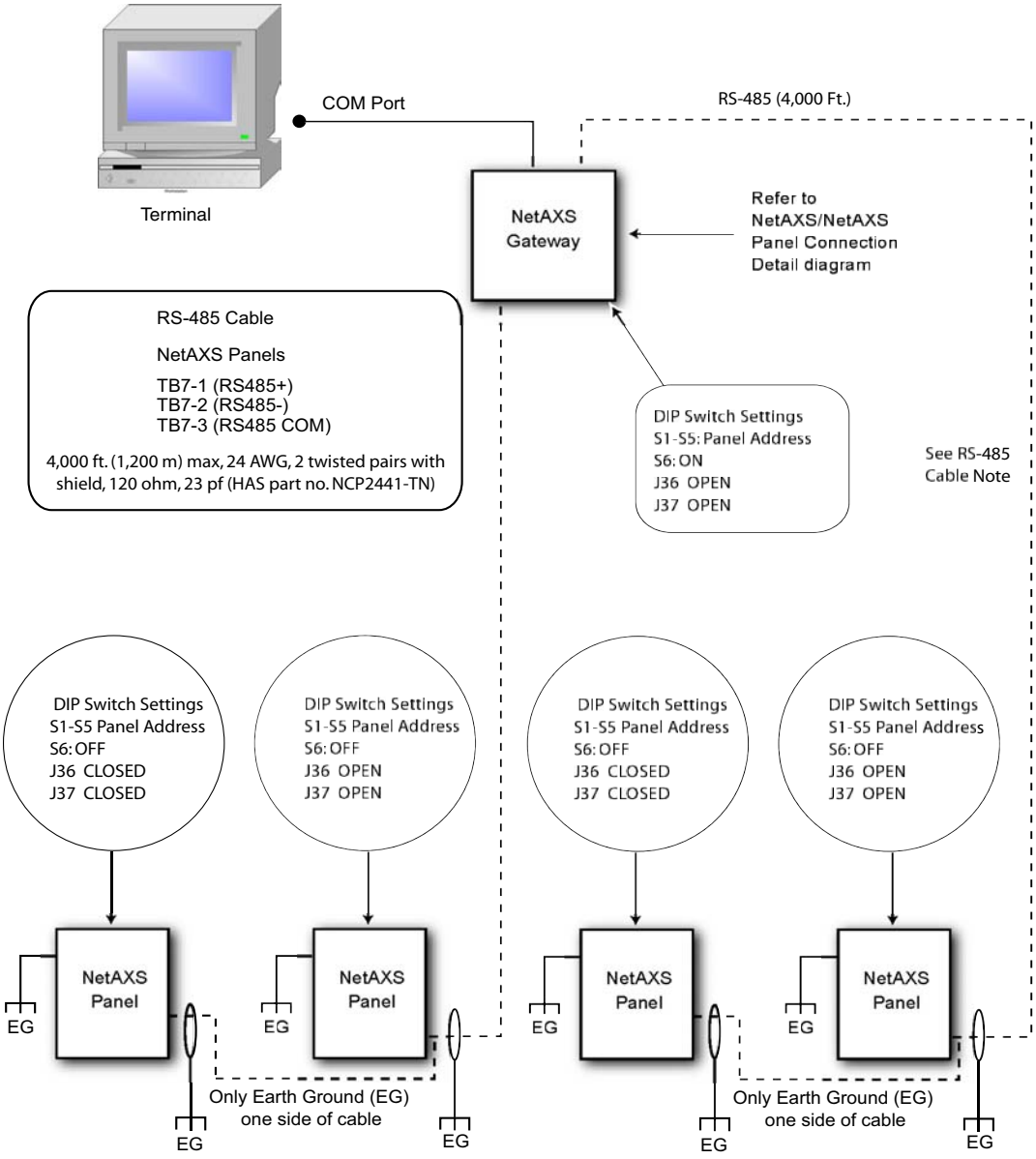
Figure 19: RS-485 Connection via NetAXS™



5.3 RS-485 Connections with Multidrop Panels at Both Ends of the Cable

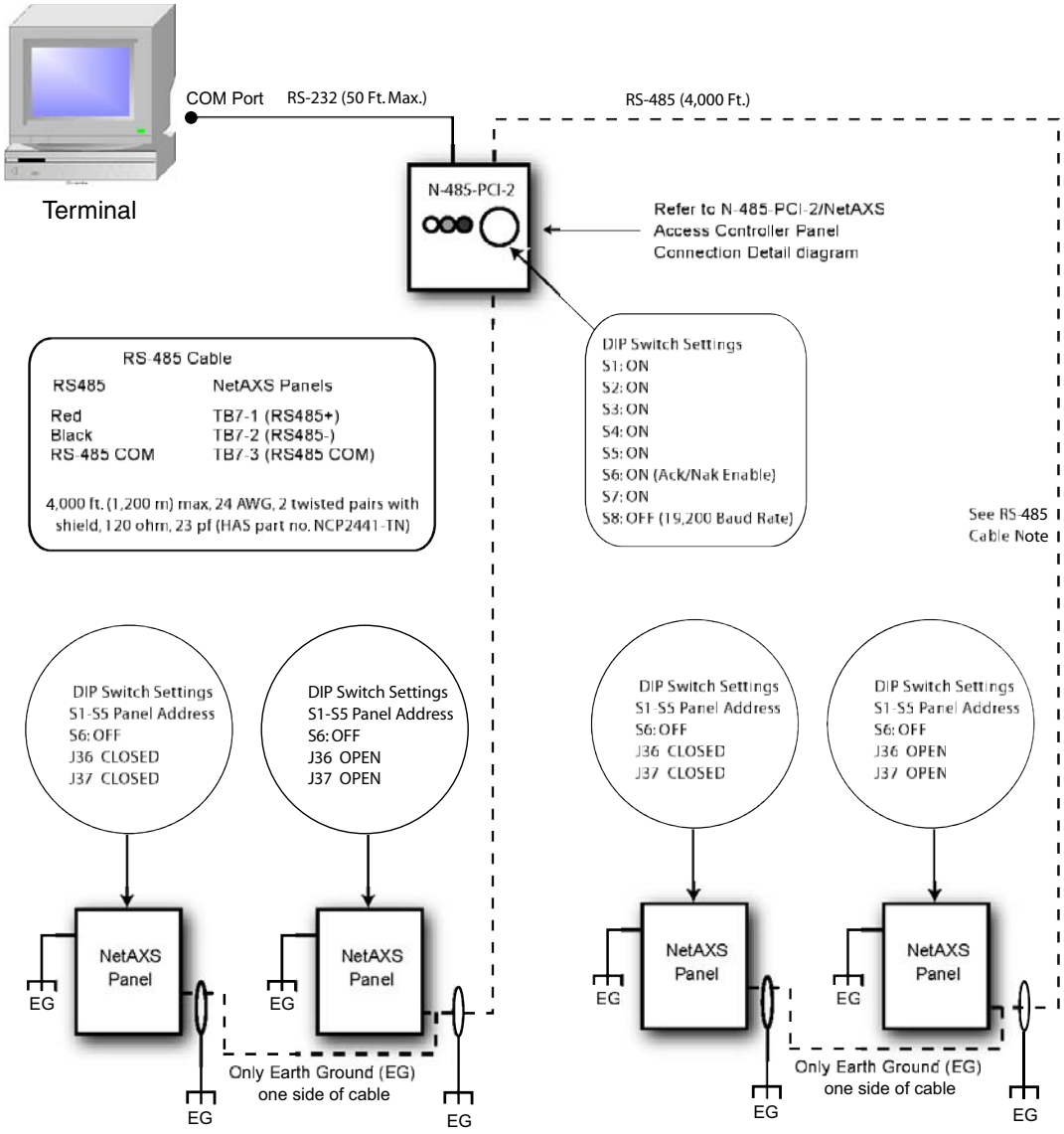
You can connect Multidrop panels at both ends of an RS-485 cable via either a NetAXS™ panel or a PCI-2 device. This connection has not been reviewed by UL.

Figure 20: RS-485 Connection via NetAXS™ with Multidrop Panels at Both Ends



It is recommended to Earth Ground (EG) each NetAXS enclosure individual

Figure 21: RS-485 Connection via PCI-2 with Multidrop Panels at Both Ends

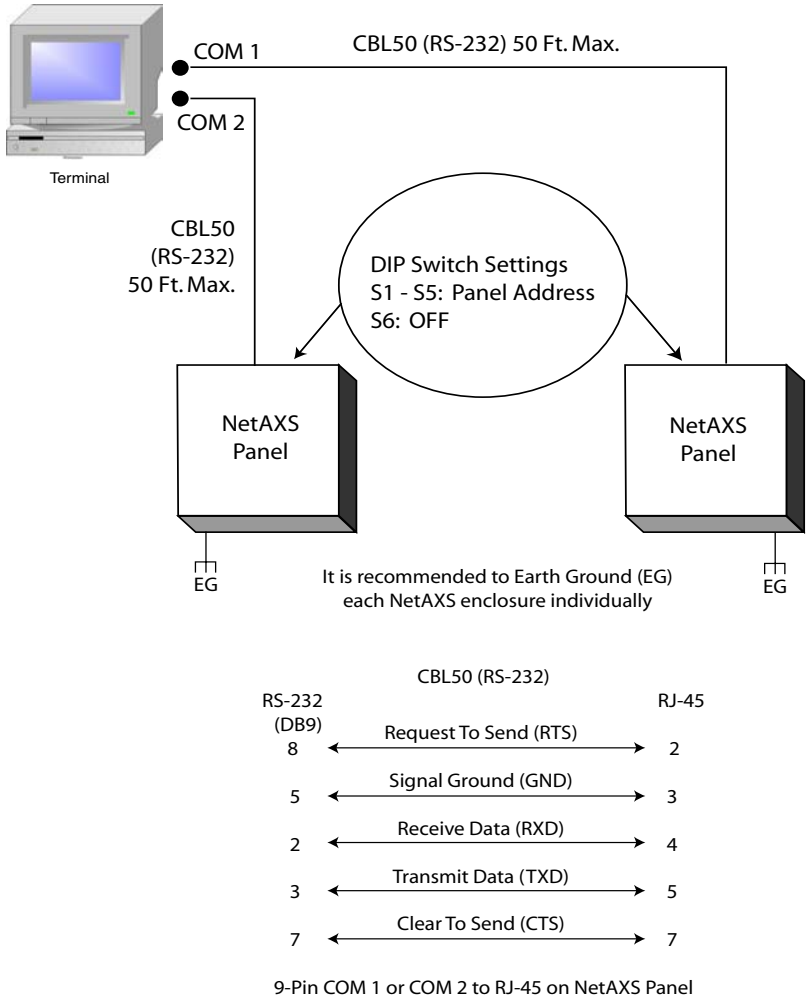


It is recommended to Earth Ground (EG) each NetAXS enclosure individually

5.4 RS-232 Connection

This connection supports one NetAXS™ Access Controller panel for each COM port. It has been reviewed by UL. However, because UL has reviewed the NetAXS panel only as a standalone system, the computer terminal and NetAXS gateway panel appear in this section only to illustrate the installation and programming of the NetAXS panel.

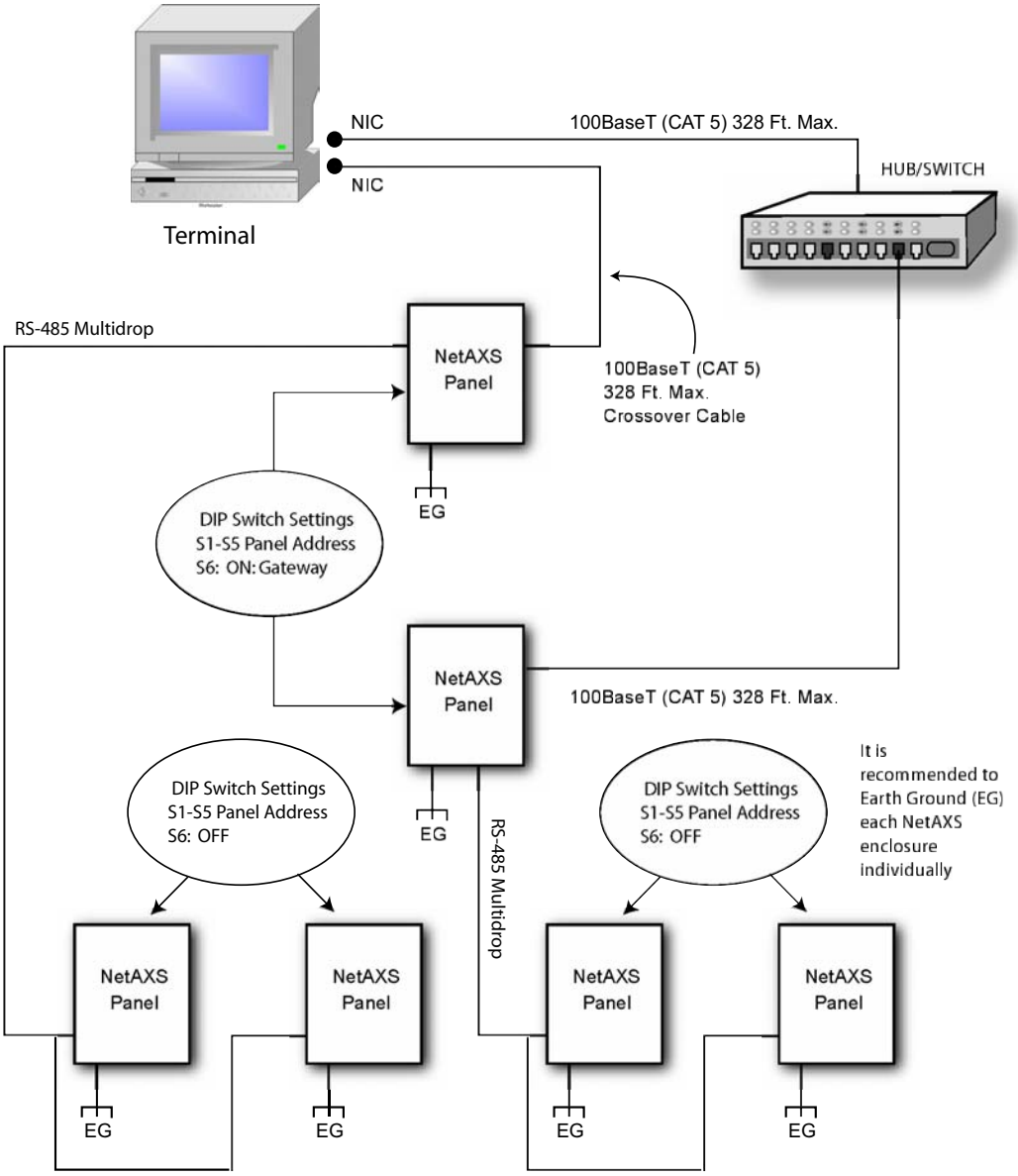
Figure 22: RS-232 Connection



5.5 Ethernet Connection

This connection supports a maximum of 255 IP connections per server. It has not been reviewed by UL.

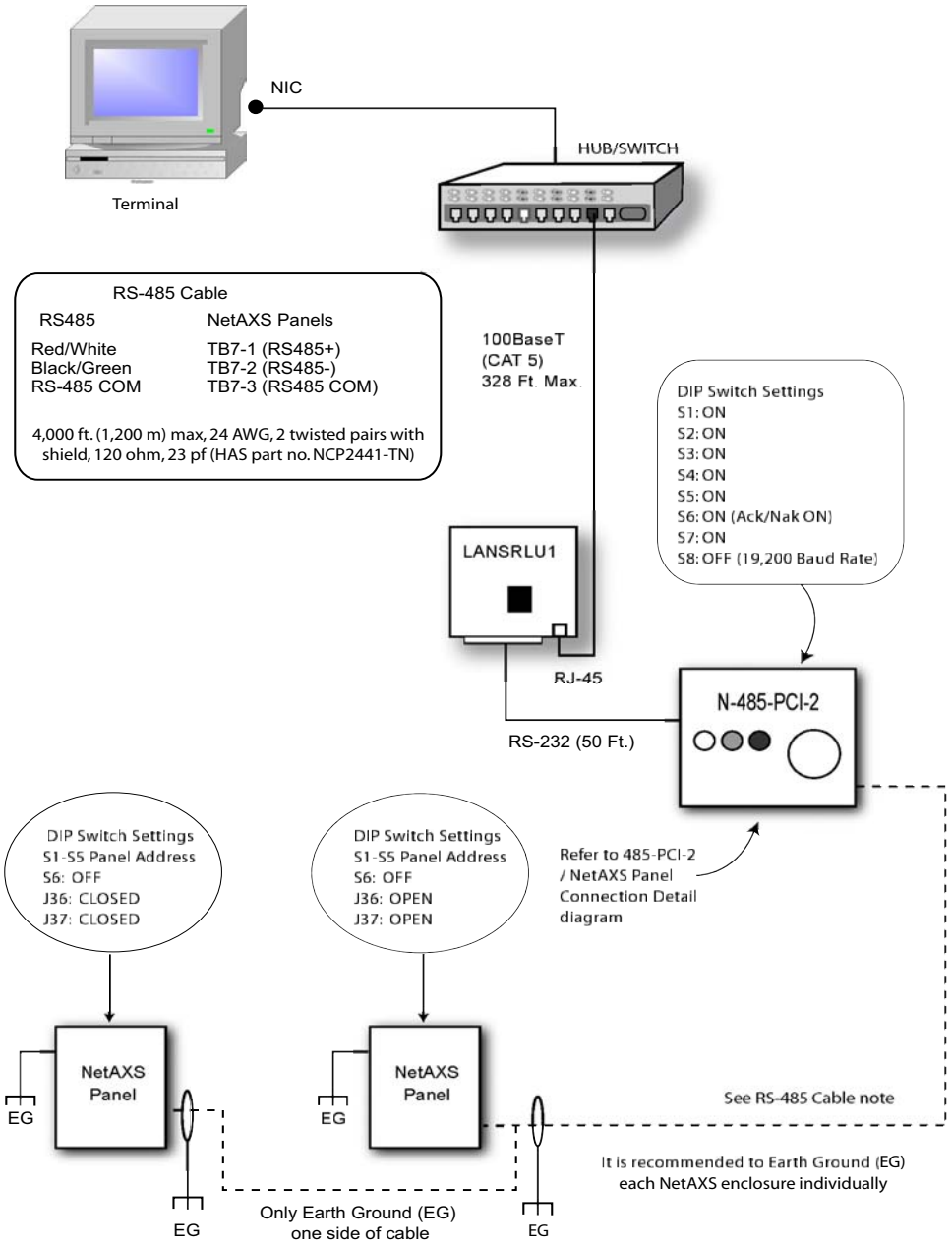
Figure 23: Ethernet Connection



5.6 LANSRLU1 Connection

This connection supports thirty-one panels for each drop line and a maximum of 255 IP connections. It has not been reviewed by UL.

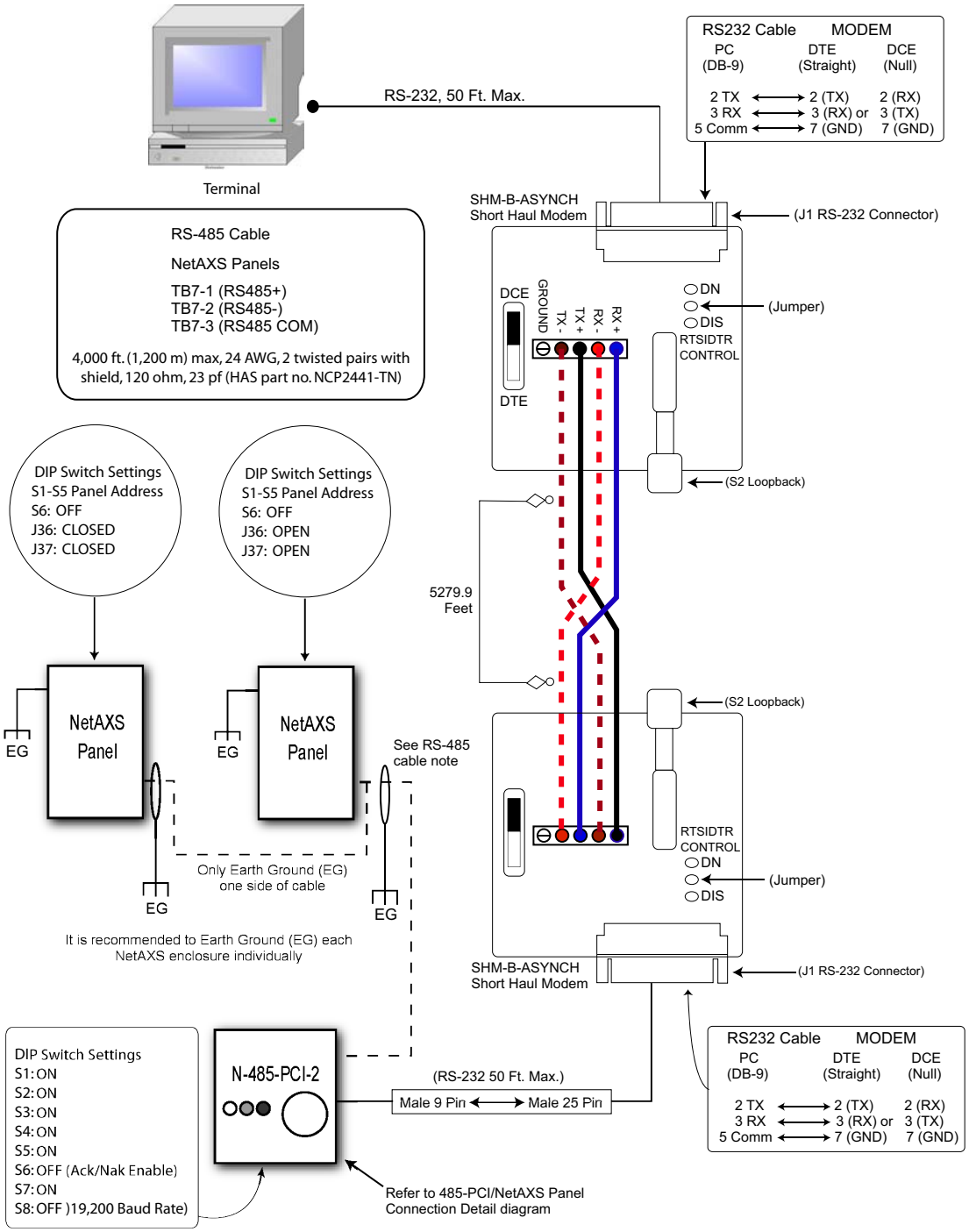
Figure 24: LANSRLU1 Connection



5.7 RS-485 Short Haul Modem Connection via PCI-2

This connection supports thirty-one NetAXS™ Access Controller panels for each drop line. It has not been reviewed by UL.

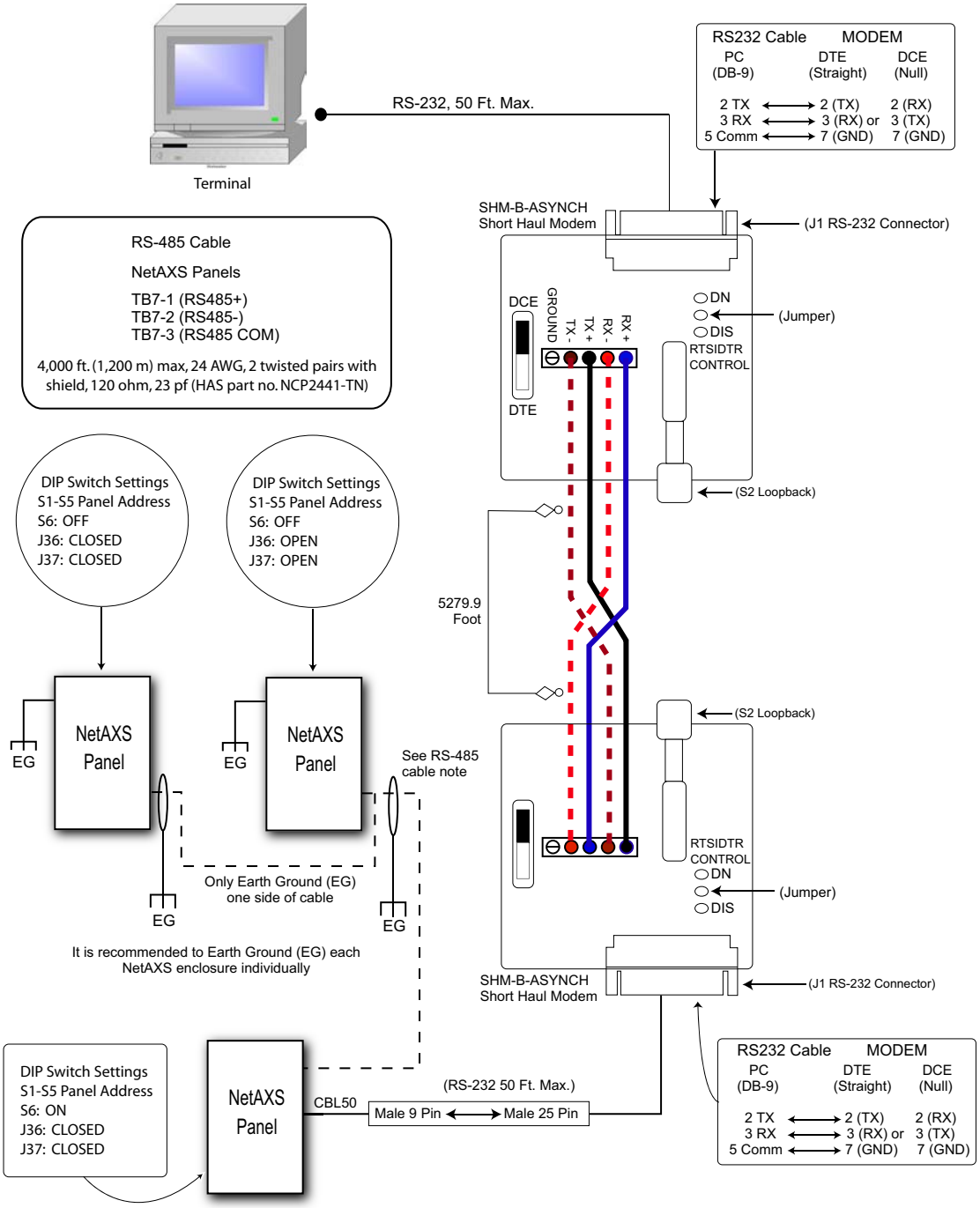
Figure 25: RS-485 Short Haul Modem Connection via PCI-2



5.8 RS-485 Short Haul Modem Connection via NetAXS™

Thirty-one NetAXS™ Access Controller panels for each drop line. It has not been reviewed by UL.

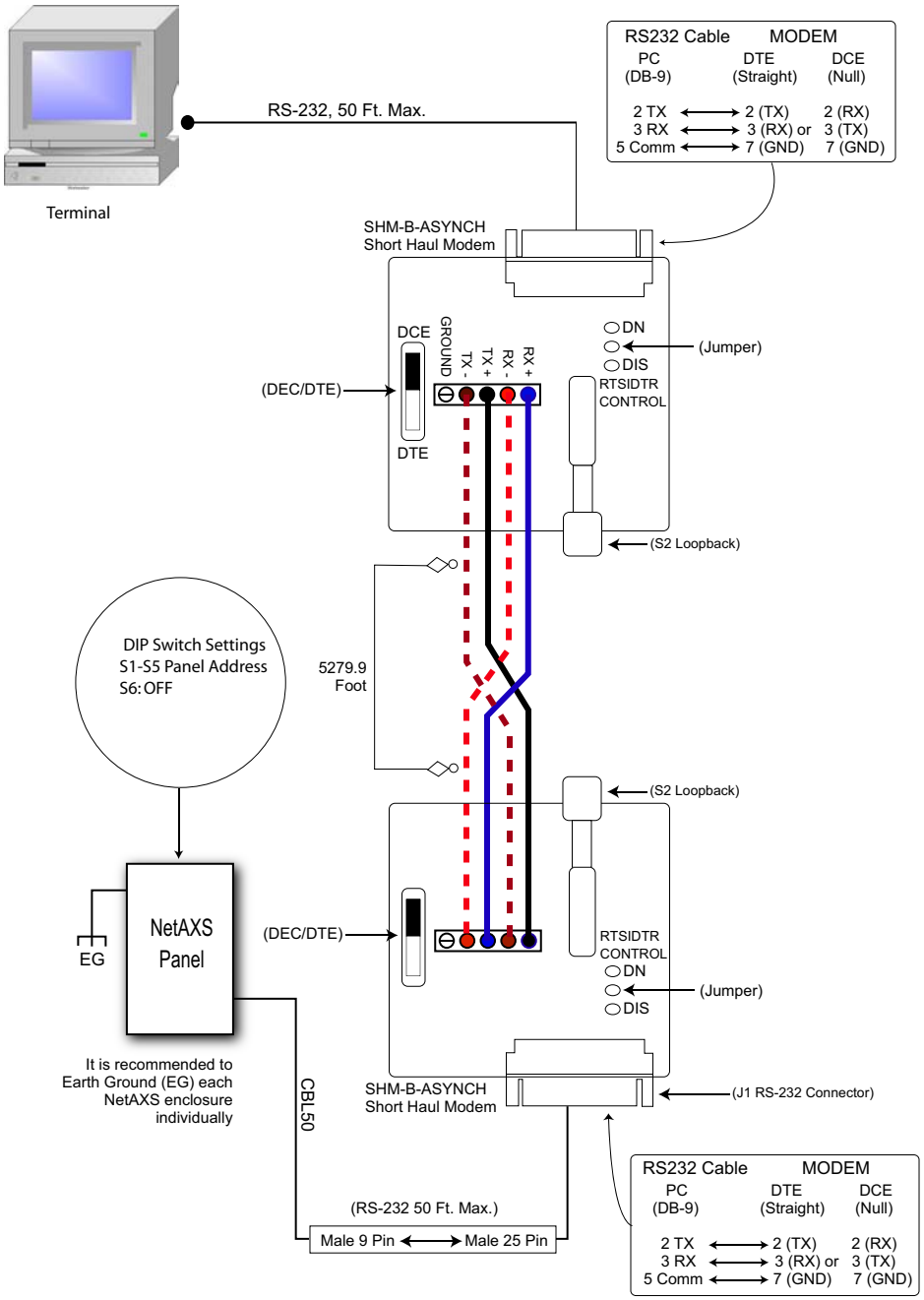
Figure 26: RS-485 Short Haul Modem Connection via NetAXS™



5.9 RS-232 Short Haul Modem Connection

One NetAXS™ Access Controller panel for each loop. It has not been reviewed by UL.

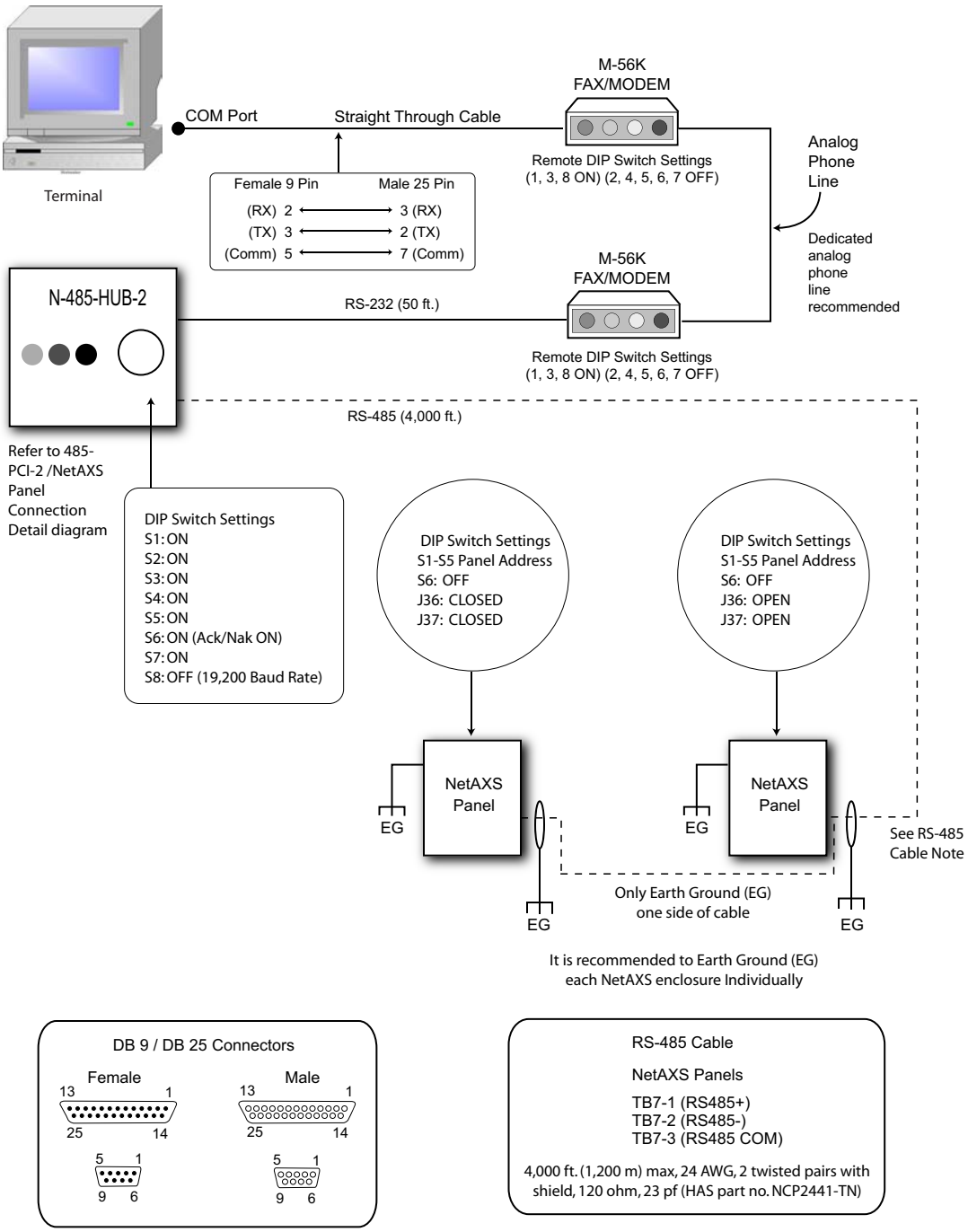
Figure 27: RS-232 Short Haul Modem Connection



5.10 M-56K Dial-up Modem, RS-485 Connection via Hub

Thirty-one NetAXS™ Access Controller panels for each drop line. It has not been reviewed by UL.

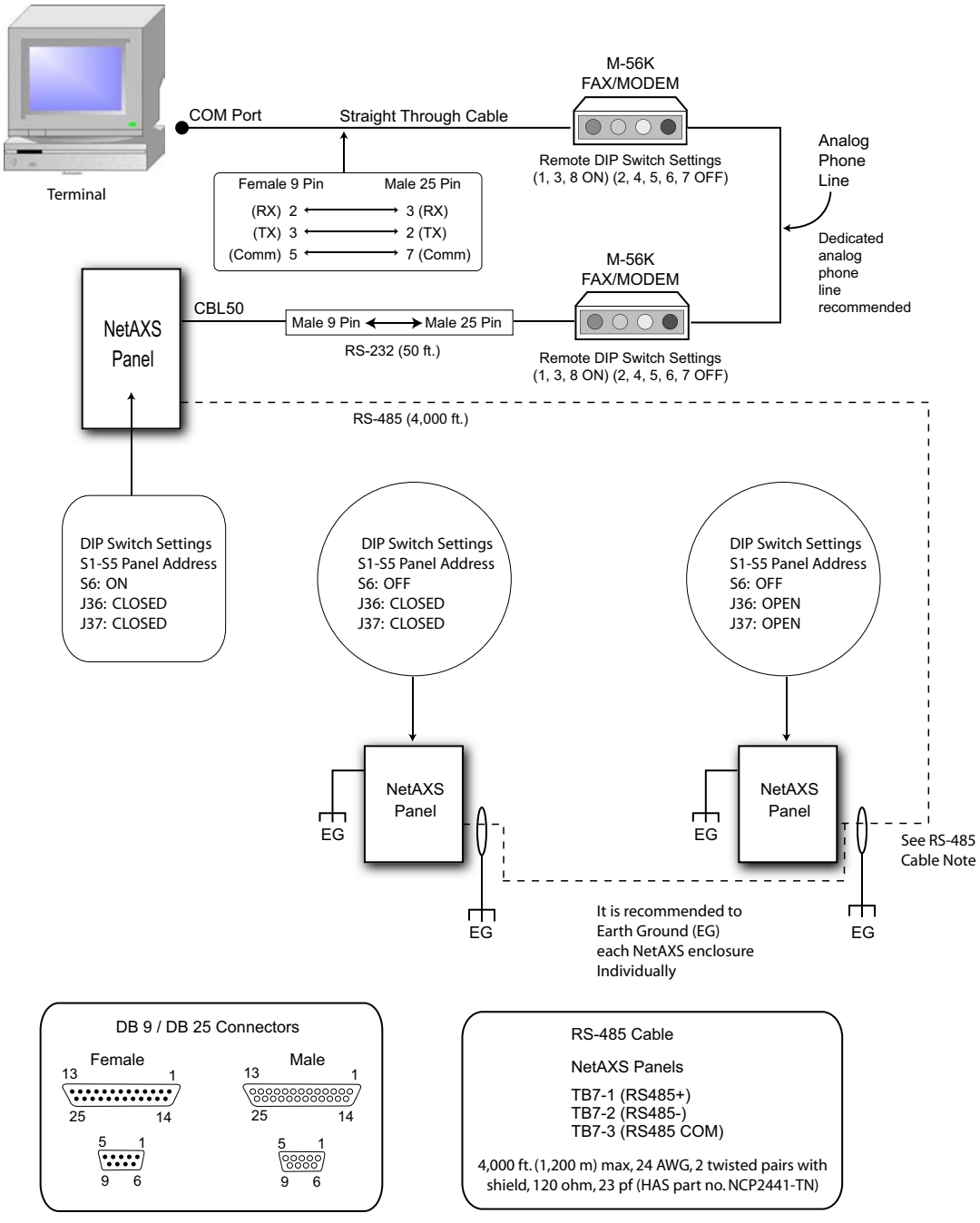
Figure 28: M-56K Dial-up Modem, RS-485 Connection via Hub



5.11 M-56K Dial-up Modem, RS-485 Connection via NetAXS™

Thirty-one NetAXS™ Access Controller panels for each drop line. It has not been reviewed by UL.

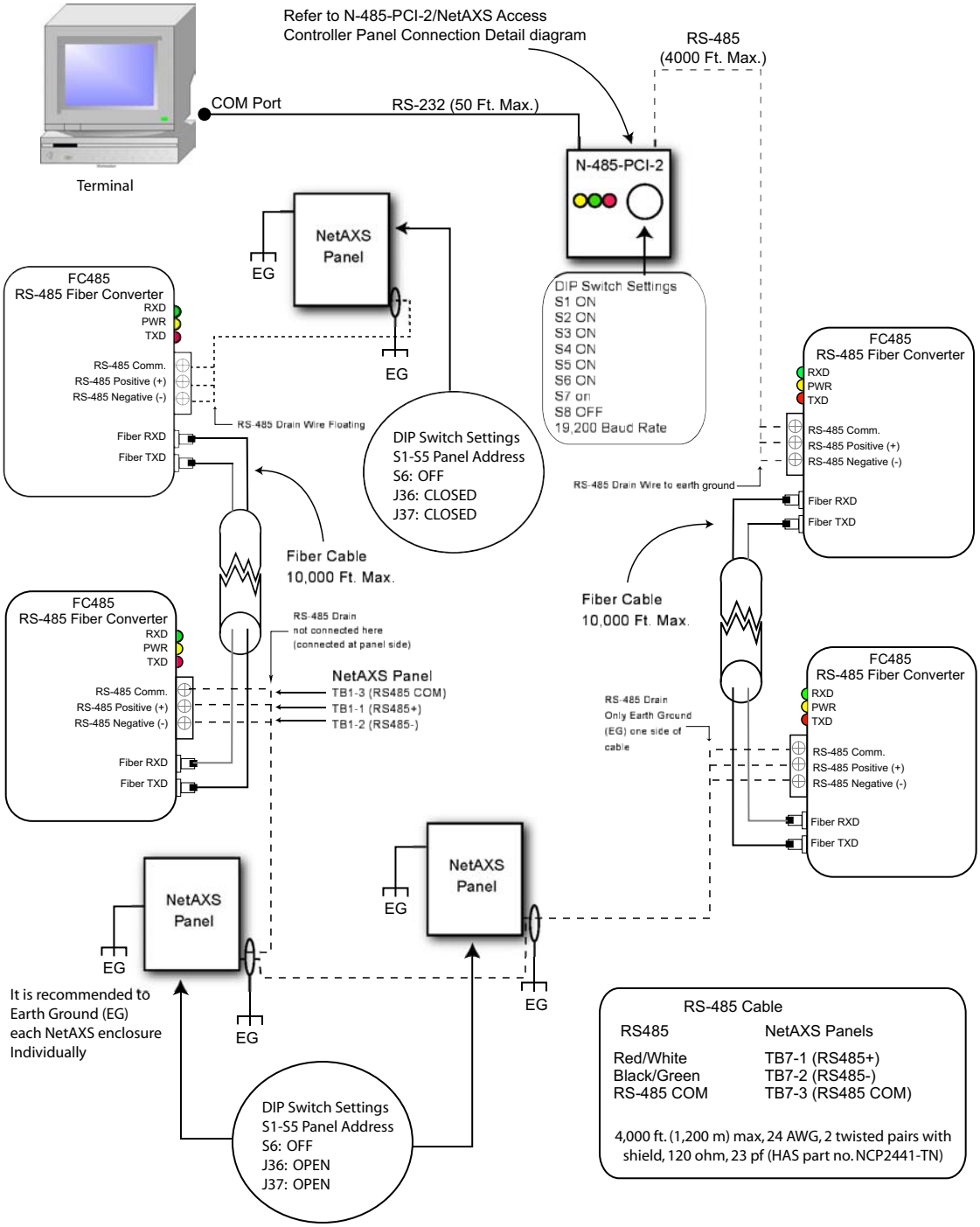
Figure 29: M-56K Dial-up Modem, RS-485 Connection via NetAXS™



5.12 Fiber Converter to RS-485 Connection via PCI-2

This connection supports thirty-one NetAXS™ Access Controller panels for each drop line. It has not been reviewed by UL.

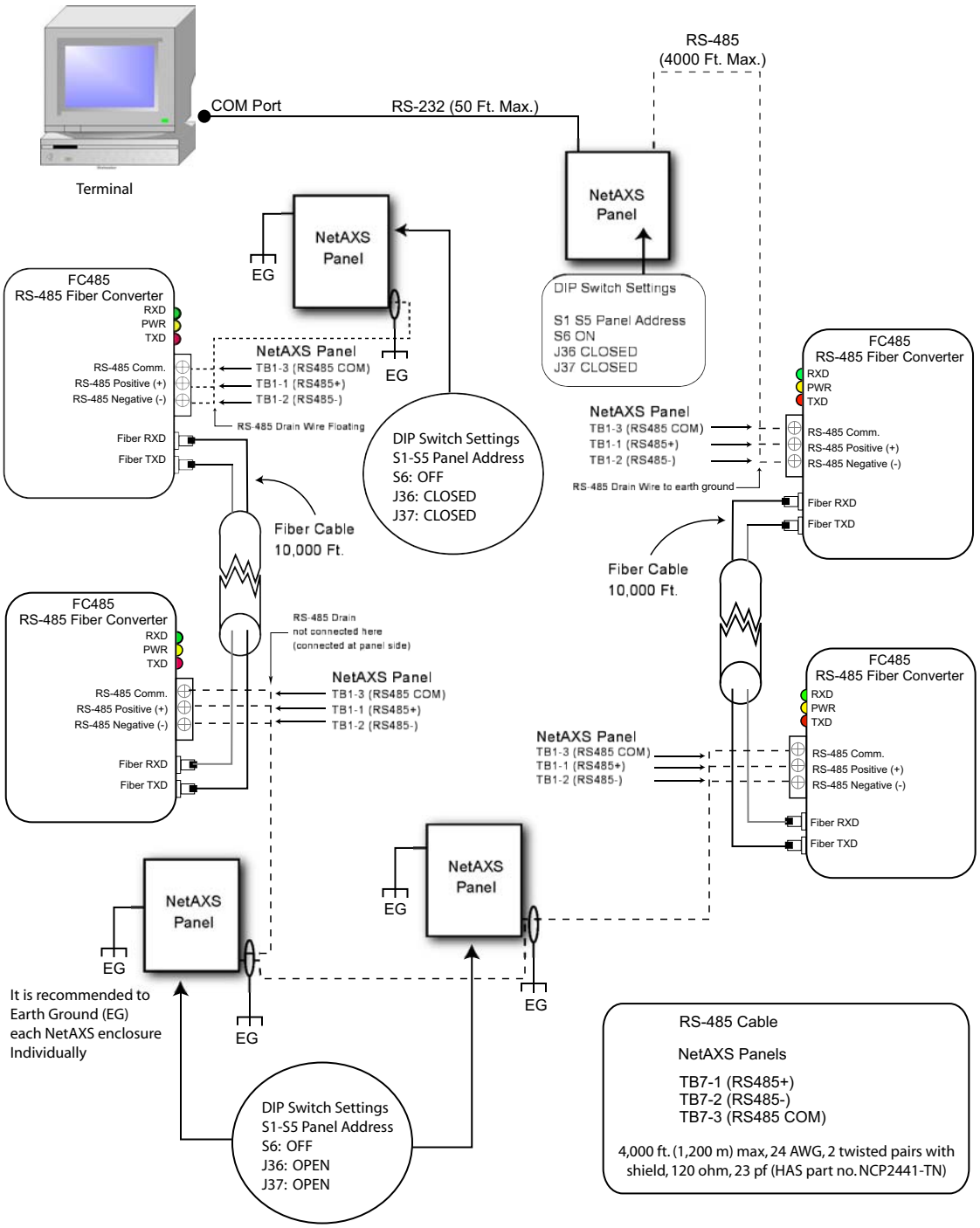
Figure 30: Fiber Converter to RS-485 Connection via PCI-2



5.13 Fiber Converter to RS-485 Connection via NetAXS™

This connection supports thirty-one NetAXS™ Access Controller panels for each drop line. It has not been reviewed by UL.

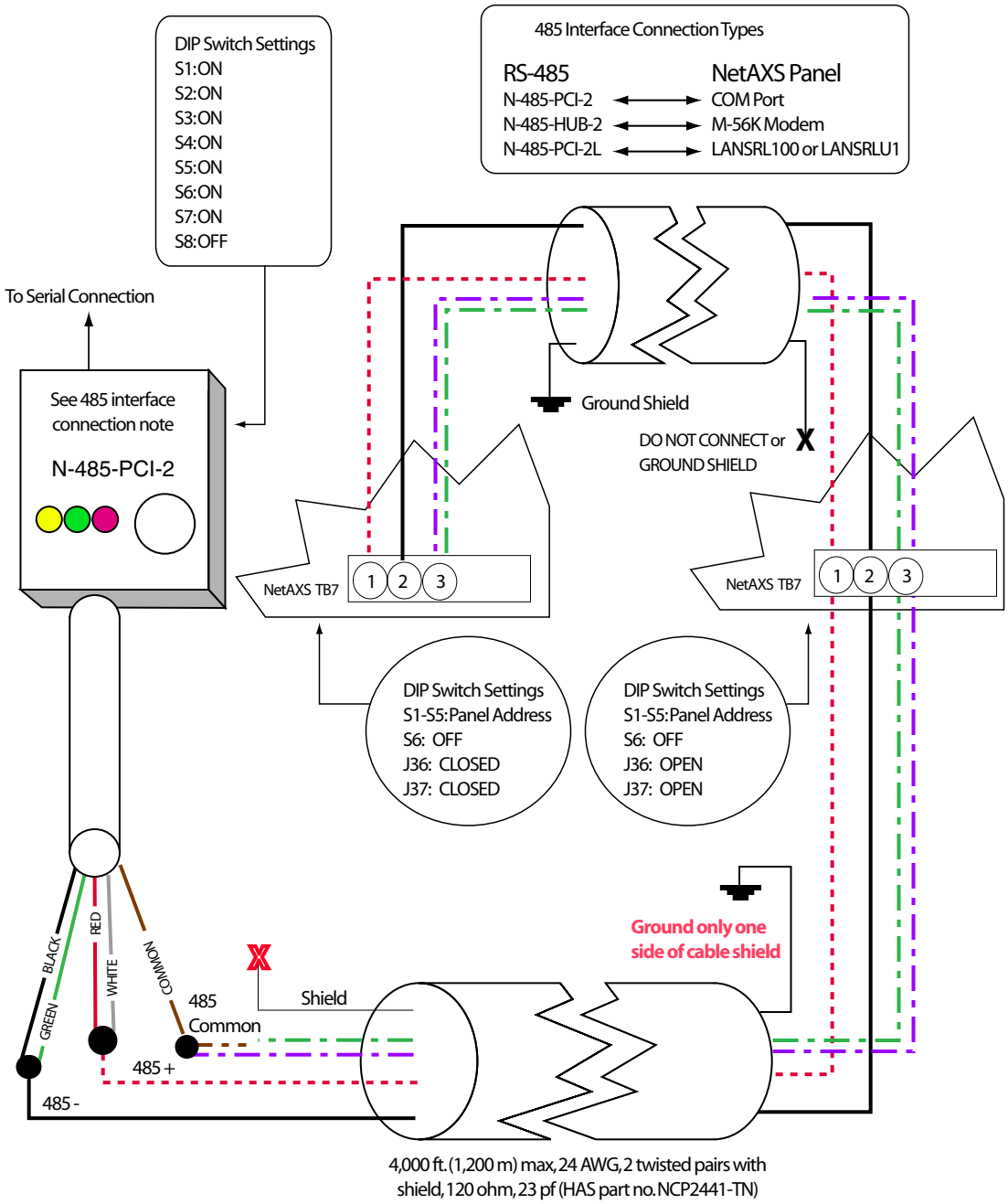
Figure 31: Fiber Converter to RS-485 Connection via NetAXS™



5.14 N-485-PCI-2/NetAXS™ Access Controller Panel Connection Detail

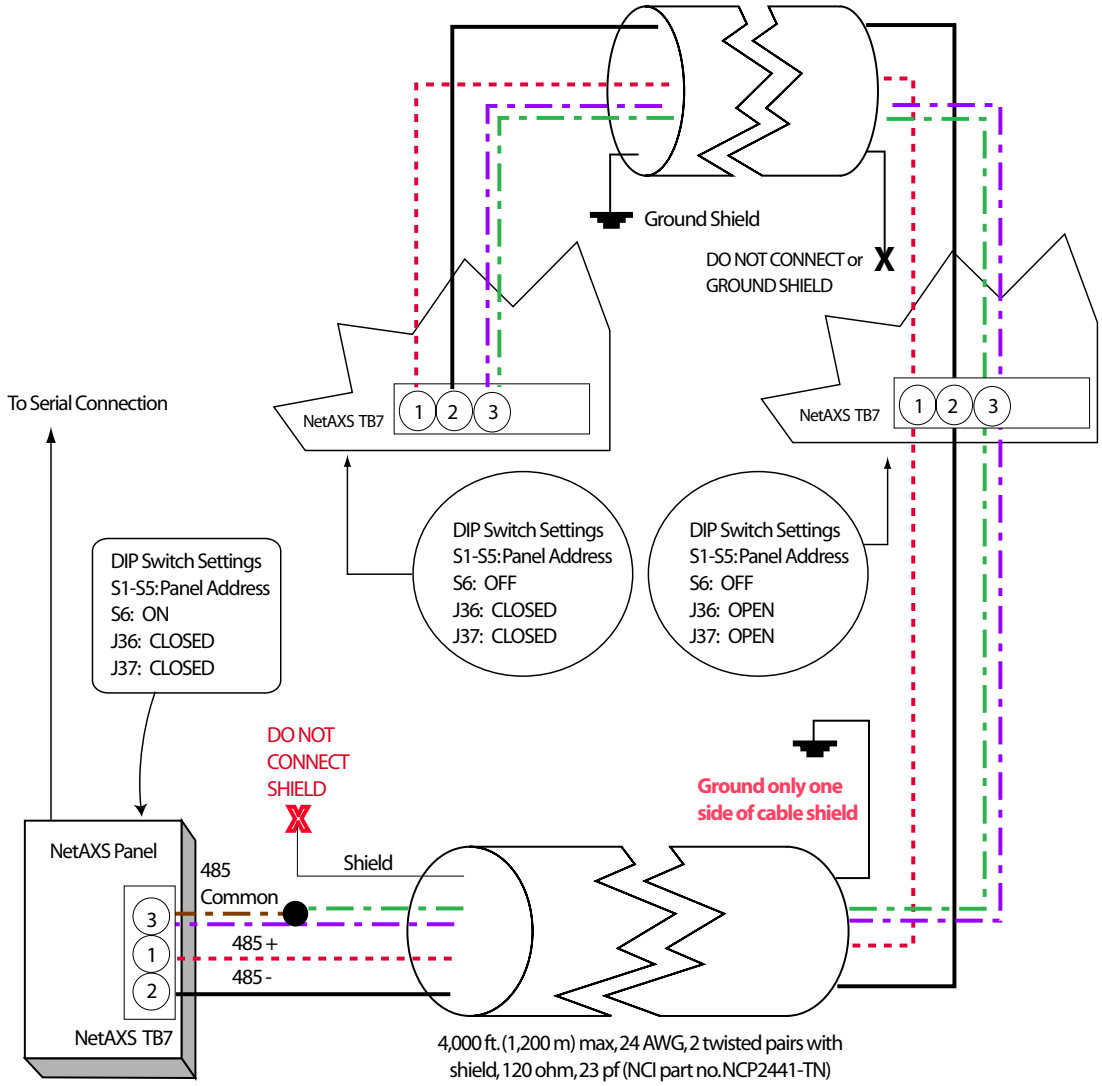
This configuration has not been reviewed by UL.

Figure 32: N-485-PCI-2/NetAXS™ Access Controller Panel Connection Detail



5.15 NetAXS™/NetAXS™ Access Controller Panel Connection Detail

Figure 33: NetAXS™/NetAXS™ Access Controller Panel Connection Detail

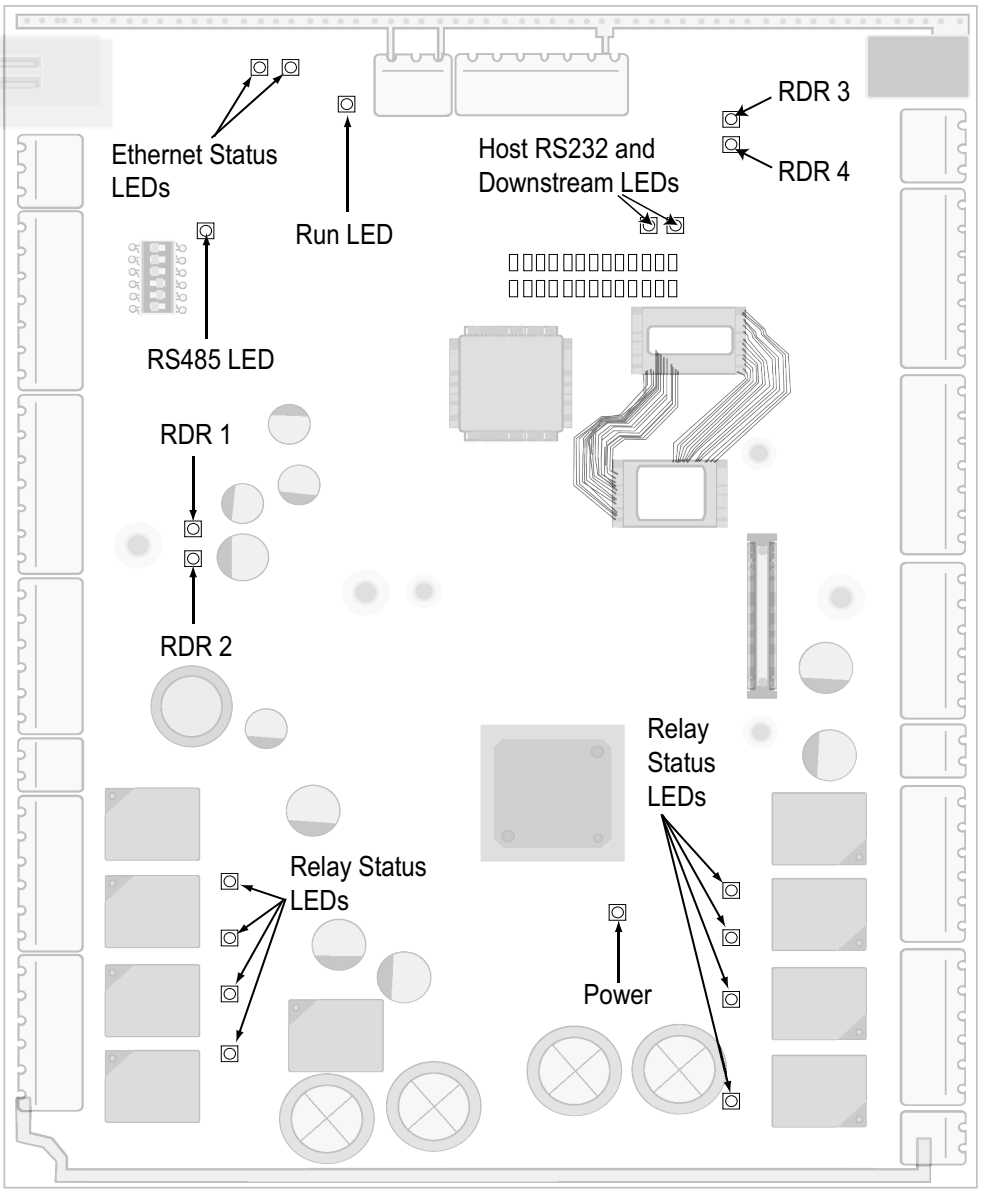


6.0 NetAXS™ Startup

6.1 LED Operation

When the panel wiring is complete, turn on the power. It might take a few minutes for the panel to complete the power-up sequence. When the board does initialize, verify that the appropriate LEDs identified in the following figure are in accord with the descriptions in Table 7 on page 48.

Figure 34: System, Relay and Power LEDs



The following table indicates the status associated with each LED.

Table 7 LED Status

LED	PWR	RUN	H485	H232	DS	COM	LINK	RLY	RDR
GREEN	Power OK	RUN Heart Beat	Multi-drop Receive Data	RS232 Receive Data	Down-stream Receive Data	100Mbit	Link OK	Relay Active	Flash at read
RED	N/A	N/A	Trans-mit Data	Trans-mit Data	Trans-mit Data	N/A	N/A	N/A	N/A
AMBER	N/A	N/A	TX & RX Data	TX & RX Data	TX & RX Data	N/A	TX & RX Data	N/A	N/A
OFF	Power Off	Mal-function	No Com	No Com	No Com	10Mbit	No Link	Relay Off	Normal

Note: The Ethernet/COM status LED will be green even if no cable is attached.

7.0 Hardware Specifications

7.1 Relay Contacts

Eight Form-C SPDT relays, 2 A @ 28 VDC (PTC limited).

7.2 Reader Interface

- Reader Power: 12.4 VDC nominal with 600 mA combined current with readers and AUX Power.
- Reader LED Output: Open collector driver capable of sinking up to 8 mA.
- Reader Tamper: Supervised or non-supervised input.
- Reader Data Input: TTL compatible inputs.
- Reader Buzzer Output: Open collector driver capable of sinking 8 mA at 15 VDC.

7.3 Maximum Output Loading

- Maximum current for any of the four reader outputs is 600 mA.
- Maximum current for any of the eight relay outputs on the HPACM8 is 2 A.
- Maximum battery charge current for the two batteries wired in series is 700 mA.
- Maximum combined current of the four reader outputs and the two auxiliary outputs is 600 mA.
- Maximum combined current of the two auxiliary outputs (if used without the four reader outputs) is 500 mA.
- Combined current of the eight relay outputs on the HPACM8 relay board is 2 A.

7.4 Common Connections

Common connections are all connected internally. They are not connected to the panel chassis.

7.5 Mechanical

- Enclosure Dimension: 17.7 inches (450 mm) W x 23.9 inches (607 mm) H x 3.54 inches (90 mm) D.
- Enclosure Weight:
  - With two batteries (including the door): 33.70 lbs
  - With one battery (including the door): 28.90 lbs
  - Without batteries (including the door): 24.25 lbs

7.6 Environment

- Temperature: 0C to 49C operating, -55C to +85C storage.
- Humidity: 5% to 85% RHNC.

7.7 Communications and Wiring

Table 8 Communications and Wiring

Communication Type	Description	Maximum Panels	Maximum Distance: Feet (Meters)
Direct to COM Port			
CBL50, RS-232 Cable	9-pin to RJ-45	1	50 (15)
N-485-PCI-2	RS-485 9-pin to CPU	31	4,000 (1,220)
Modems			
M-9600-LA (LO)/ N-485-PCI-2	Lease-line Modem to RS-485	31	NA/4,000 (NA/122)
SHM-B-ASYNC/ N-485-PCI-2	Short-haul Modem to RS-485	31	5,280/4,000 (1,610/1,220)
SHM-B-ASYNC/CBL50	Short-haul Modem to RS-232	1	5,280/50 (1,610/15)
M-56K/N-485-HUB-2	Dial-up Modem to RS-485	31	NA/4,000 (NA/1,220)
Fiber			
FC485	Fiber converter to RS-485	31	10,000/4,000 (3,050/1,220)

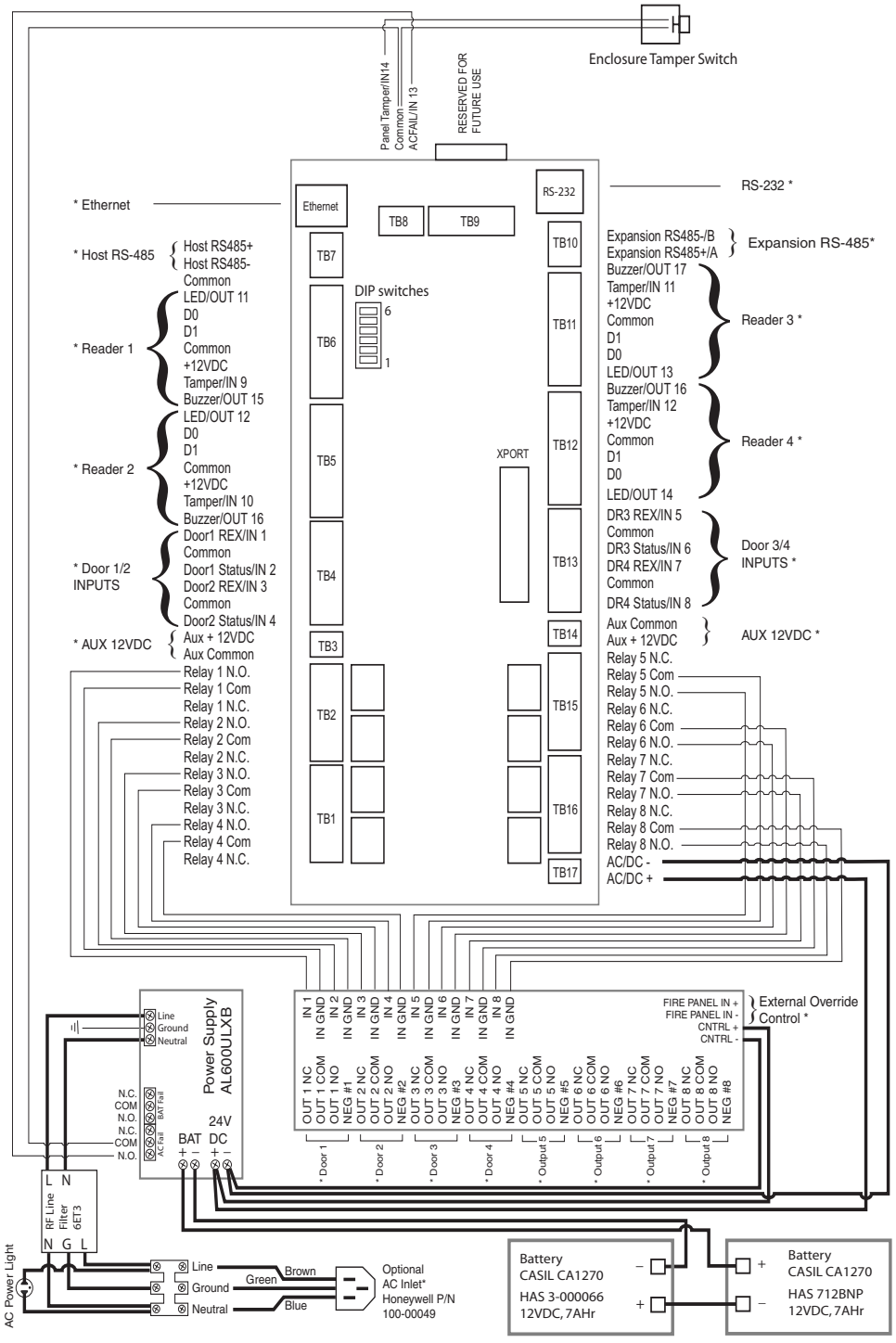
7.8 Reader Wiring

Table 9 Reader Wiring

Cable Specifications	Description	AWG	Maximum Distance: Feet (Meters)
Readers			
NC1861-BL	6 Conductor, Shielded	18	500 (153)
Alarm Input			
NC1821-GR	Twisted Pair, Shielded	18	2,000 (610)
Relay Outputs			
NC1821-GR	Twisted Pair, Shielded	18	2,000 (610)

7.9 NX4L1 Panel Wiring Diagram

Figure 35: NetAXS Panel Wiring Diagram



* Represents field wiring (Class 2 power limited)

Note: Maintain at least a .25-inch distance between the non-power limited wiring (115 VAC/60 Hz input wiring, power line filter wiring, 24 VDC wiring, battery backup/charger wiring, and battery-to-battery wiring) and all other wiring, which is power-limited Class 2 wiring.

8.0 Maintenance

Perform the following maintenance on the NetAXS™ enclosure:

- Change the CASIL CA1270 lead-acid backup batteries (HAS part number 3-000066) every two to two-and-a-half years.

Caution: Do not connect an uncharged battery to the panel.

- Oil the lock once per year
- Use the following procedure to change the 3.5 A, 250 V, Bussman type AGC fuse in the AL600ULXB Power Supply module. See Figure 1 on page 6 to identify the location of the Power Supply's fuse and the four mounting screws that secure the protective Power Supply cover.

Warning: Be sure to disconnect the AC power before removing the Power Supply cover.

Warning: To reduce the risk of fire, replace the fuse only with a 3.5 A, 250 V, Bussman type AGC fuse.

1.Disconnect the AC power.

2.Remove the protective Power Supply cover by removing the four mounting screws (see Figure 1 on page 6).

3.Remove the translucent fuse cover.

4.Replace the fuse with a new 3.5 A, 250 V fuse.

5.Re-attach the translucent fuse cover.

6.Re-attach the protective Power Supply cover with the four mounting screws.

7.Re-connect the AC power.

- Use the following procedure to change the 3, 250 V, Bussman type GMA fuse in the power inlet terminal block.

Warning: Be sure to disconnect the AC power before removing the fuse holder from the power inlet terminal block.

Warning: To reduce the risk of fire, replace the fuse only with a 3 A, 250 V, Bussman type GMA fuse.

1. Disconnect the AC power.
2. Remove the fuse holder from the power inlet terminal block (see Figure 1 on page 6 to identify the location of the power inlet terminal block).
3. Replace the blown fuse in the lower section of the fuse holder with the new fuse. The upper section of the fuse holder provides a convenient location for a spare fuse.
4. Slide the fuse holder back into the power inlet terminal block.
5. Re-connect the AC power.

9.0 Troubleshooting

Table 10 Troubleshooting Problems and Solutions

Problem	Solution
The panel powers up, but it does not respond to any communication, cards reads, or input activation.	Ensure that the Address DIP switches are set to a value other than zero. Turn off the power (including battery), change the settings, and re-apply the power.
No communications exist with the Ethernet port.	Only a panel set to be a Gateway (DIP switch 6 = ON) will have communications on the Ethernet port. If you need to use that port to access the panel, turn off the power (including the battery), change the switch setting, and reapply the power. Note that if the panel is normally not a Gateway on a Multidrop communication bus, then the Host RS-485 connection (TB7) should also be disconnected while DIP switch 6 is ON. After completion of the Ethernet session, turn off the power (including the battery), change the switch setting, re-connect the Host RS-485 terminal block, and re-apply the power.
The IP address is incorrectly set to verify the value.	If you are connecting directly to a computer instead of going through a router or hub, use a cross-over Ethernet cable.
The N1000 panels on the Multidrop bus do not report.	N1000 panels will not communicate to a NetAXS™ panel that is configured as a Gateway. Replace all of the N1000 panels with NetAXS™, or replace the Gateway panel with an N-485-PCI-2 device.
The BAD CRC counter is incrementing every minute.	Two or more panels on the Multidrop Bus have the same panel address. Verify that each panel has a unique address setting on DIP switch positions 1-5.
A dropline panel in standalone mode using RS-232 may unexpectedly fill its buffer.	The preferred solution is to configure the standalone panel through the Web server as a Gateway and use the board PCI and AckNak communications. This also gives the user a more secure and reliable communications line. Another solution is to execute a new command that will allow the user to turn the Tesla flow control off: _U=<pn>_D (disable flow control) This prevents the panels from inadvertently filling their buffers. To turn the Tesla flow control back on: _U=<pn>_E (enable flow control)

Note: The NetAXS™ EOL network is AC-coupled. There is no resistance difference between the RS-485 positive and negative terminals if the EOL network is on or off (J36 and J37).

10.0 Technical Support

10.1 Normal Support Hours

Monday through Friday, 7:00 a.m. to 7:00 p.m. Central Standard Time (CST), except company holidays: (800) 323-4576.

10.2 Web

For technical assistance please visit http://www.honeywellaccess.com

NetAXS™ Standalone Operation A

A.1 Basic Standalone Operations

A.1.1 Card Read / Door Lock Operation

1. Present a card to a reader.
2. The reader sends the card number to a reader input on the panel.
3. The panel searches its database and:
    - If it is a valid card, then energize the door relay associated with the particular reader input. The card is valid when it is in the card database on the panel and the current time and date conforms to the time zone associated with the card.
    - If it is not a valid card, the door relay remains locked.

A.1.2 Door Egress / Door Lock / Door Status Operation

1. Activate the door egress input.
2. The panel energizes the door relay associated with the particular door egress input for a default time of 10 seconds.
3. If the door status goes from close to open to close again during the 10 second door open period, the door relay will be immediately de-energized.

A.2 Standalone Settings

A.2.1 NetAXS™ Panel Hardware Settings

- Configure the system with an RS-232 connection according to Figure 22 on page 35.
- Set DIP switches 1 through 5 to define the panel number (see Table 5 on page 27). Panel number 0 is not valid.
- Set DIP switch 6 to the OFF position to place the panel into the Multidrop mode.
- Use a personal computer's serial communications port (COM1 or COM2) and a terminal emulation program to configure the NetAXS™ panel for normal operation.

A.2.2 Communication Settings

- Baud Rate: 115200
- Data Bits: 8
- Parity: None
- Stop Bits: 1
- Flow Control: None

A.2.3 Emulation Settings

- Echo typed characters locally: YES
- Line Delay: 500 milliseconds

A.2.4 Verifying Communications

1. Press the spacebar.
2. Press the carriage return <CR>. "S?" appear for every online panel and indicates proper communication between the terminal and panel.

A.3 Standalone Commands

Caution: Use the following commands, in the order they are listed, to configure the NetAXS™ panel.

1. T command: Sets the panel's Time
2. D command: Sets the panel's Date
3. L command: Creates Time zones for use by the cards
4. C command: Adds or Deletes cards from the panel
5. W command: Program each input for either NO/NC and Supervised or NON Supervised operation
6. P command: Sets interlocks between input points and/or output points

Note: In all examples, the underbar "_" indicates a "space" character and <CR> indicates a carriage return.

A.3.1 T (Time) Command

```
_T=pn_hh:mm<CR>
```

Variables:
pn = panel number (1-31)
hh = hours (0-23) (Military time)
mm = minutes (00-59)

Example #1:

_T=1_08:30<CR>

This command would set panel 1 to a time of 8:30 AM.

Example #2

_T=6_18:15<CR>

This command would set panel 6 to a time of 6:15 PM.

A.3.2 D (Date) Command

```
_D=pn_mm/dd/yyyy_day<CR>
```

Variables:

pn = panel number (1-31)
mm = month number (1-12)
dd = day number (1-31)
yyyy = year number (ex 2007, 1999, etc.)
day = day of week (1-7):

1 = Monday
2 = Tuesday
3 = Wednesday
4 = Thursday
5 = Friday
6 = Saturday
7 = Sunday

Note: The day of week setting is a hold-over from an old command. The panel using the mm/dd/yyyy information will automatically configure panel to the correct day of the week, regardless of the setting selected in day of week. But the command still requires a value to be entered in its place of 1-7.

Example #1:

_D=1_01/09/2007_5<CR>

This command would set panel 1 to a date of 1/9/2007 and to Tuesday as the day of the week.

Example #2:

_D=25_12/14/2009_7<CR>

This command would set panel 25 to a date of 12/14/2009 with a day of week being Monday.

A.3.3 L (Time Zone) Command

```
_L=pn_tz_h1:m1-h2:m2_days<CR>
```

Variables:

pn = panel number (1-31)
tz = time zone number (1-255)
h1 = start time zone: hours (00-23) (Military time)
m1 = start time zone: minutes (00-59)
h2 = end time zone: hours (00-23) (Military time)
m2 = end time zone: minutes (00-59)
days = days of week valid values as listed below:

- 1 = Monday
- 2 = Tuesday
- 3 = Wednesday
- 4 = Thursday
- 5 = Friday
- 6 = Saturday
- 7 = Sunday
- 0 = Holiday 1
- 8 = Holiday 2
- 9 = Holiday 3

Note: 00:00 is the earliest time possible and 23:59 is the latest time possible. A single time zone cannot be made to span mid-night, through the use of extended commands we can simulate this. For more information, please seek the guidance of technical support.

Example #1:

_L=5_10_08:00-17:00_1_2_3_4_5<CR>

This command would configure panel 5 to add a time zone entry to time zone number 10 ranging from 8AM to 5PM and would be valid during Monday, Tuesday, Wednesday, Thursday, and Friday.

Example #2:

_L=25_45_16:00-23:59_0_6_7_8_9<CR>

This command would configure panel 25 to add a time zone entry to time zone number 45 ranging from 4PM to 11:59PM and would be valid during Saturday, Sunday, Holiday, 1, 2, and 3.

A.3.4 C (Card Add) Command

```
_C=pn_code_time zone_dev<CR>
```

Variables:

pn = panel number (1-31)
code = card number (range depends on card format)
time zone = time zone number the card will follow (1-255)
dev = device numbers card will work with, see below:

1 = card reader #1
2 = card reader #2
3 = card reader #3
4 = card reader #4

Example #1:

```
_C=6_12345_10_1_2_3_4<CR>
```

This command would configure panel 6 to add a card entry of 12345 to the panels database, that will be valid on reader 1, 2, 3, and 4 during the times and days specified by time zone 10.

Example #2

```
_C=18_52989_120_1_3<CR>
```

This command would configure panel 18 to add a card entry of 52989 to the panels database, that will be valid on reader 1 and 3 during the times and days specified by time zone 120.

A.3.5 C (Card Delete) Command

```
_C=pn_code<CR>
```

Variables:

pn = panel number (1-31)
code = card number (range depends on card format)

Example #1:

```
_C=6_12345<CR>
```

This command would remove card 12345 from panel 6.

Example #2

```
_C=18_52989<CR>
```

This command would remove card 52989 from panel 18.

A.3.6 W (Input) Command

```
_W=pn_input_{SO|SC|NO|NC}<CR>
```

Variables:

SO: Supervised normally open
SC: Supervised normally closed
NO: Non-supervised normally open
NC: Non-supervised normally closed (default)

Example:

```
_W=1_9_SO<CR>
```

Input 9 has been programmed as supervised, normally open on panel 1.

A.3.7 P (Interlock) Command

```
_P=pn_I/O_[number]_I/O[number]_{D|E|F|N|P}_
{D|E|F|N|P}<CR>
```

Parameters:

number: for an input number, the range is 1-96; for output, 0-78
D: De-energize
E: Energize
F: Follow
N: No action
P: Pulse

Example:

```
_P=1_I_5_O_3_E_D
```

When Input 5 is triggered, Output 3 energizes.

When Input 5 returns to its normal state, Output 3 de-energizes.

A.3.8 Flow Control Disable/Enable Command

(Use this command only for a dropline panel using RS-232 in standalone mode)

```
_U=[panel name]_{D|E}
```

Parameters:

D: Disable
E: Enable

Example:

```
_U=30_D
```

This disables the flow control on panel 30 and prevents the panel's buffers from filling. After a hard re-set of the panel, the flow control is re-enabled.

A.4 NetAXS™ Panel Defaults

A.4.1 Reader Ports

The panel accepts a Wiegand serial data packet from the card reader. If the card is in the database, the associated relay is activated. If the card is not in the database, the relay state is unchanged.

The following are the default reader port to relay associations:

Reader Number	Controls...
1	Relay 1 (Output 1)
2	Relay 2 (Output 2)
3	Relay 3 (Output 3)
4	Relay 4 (Output 4)

A.4.2 Reader LED Outputs

The Reader LED output defaults to toggle the card reader LED from Red to Green for two seconds when a valid card is presented. No LED color change (other then a possible momentary change depending on reader used) occurs if the card is not in the database.

The following are the default reader LED port to output associations:

Reader LED	Controls...
Reader 1	Output 11
Reader 2	Output 12
Reader 3	Output 13
Reader 4	Output 14

A.4.3 Reader Tamper Inputs

The card readers have a Tamper signal wired to the NetAXS™ panel. This is a two-state input configured as a Normally Closed contact.

The following are the default Reader Tamper Input to Panel Input associations:

Tamper LED	Reports as...
Tamper 1	Input 9
Tamper 2	Input 10
Tamper 3	Input 11
Tamper 4	Input 12

A.4.4 Door Egress Inputs

The panel has a Request-To-Exit (Egress) input for each door. The default condition is a two-state input configured as Normally Closed contact. When the egress input is active, the associated output relay will be active.

The following are the default egress input associations:

Egress input	Controls relay...	Panel input	Reports as...
1	1	SP1	Input 1
2	2	SP3	Input 3
3	3	SP5	Input 5
4	4	SP7	Input 7

A.4.5 Door Status Inputs

The panel has a Door Status input for each door. The default condition is a two-state input configured as a Normally Closed contact.

The following are the default door status input associations:

Door Status input	Panel input	Reports as...
1	SP2	Input 2
1	SP4	Input 4
1	SP6	Input 6
1	SP8	Input 8

A.4.6 ACFAIL and Panel Tamper Inputs

The panel has the following two additional generic inputs that can be used as generic inputs or as either External Power Fail or Enclosure Tamper inputs. The default condition is a two-state input configured as Normally Closed. Input 14 is a special case, since it reports in as two inputs (inputs 14 and 20). Input 14 can be used as a generic input, but input 20 is used for the Enclosure Tamper alarm. An active External Power Fail input indicates that the system is operating from the battery current, not from the primary input power. An inactive External Power Fail input indicates that the system is operating from the primary input power.

Generic input	Panel input	Reports as...
Generic/External Power Fail	SP9	Input 13
Generic/Enclosure Tamper	SP10	Inputs 14 and 20

A.4.7 Additional Generic Outputs

The panel has the following four additional generic form C relay outputs that can be programmed using the P command:

Relay output	Controls...
5	Output 5
6	Output 6
7	Output 7
8	Output 8

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