MINI TERM ®

CICP1200
Access Control Unit
Installation and Service Manual

Version 1

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WI1071

FCC Warning

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

NOTE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which the user will be required to correct the interference at his own expense.

Shielded cables must be used with this unit to ensure compliance with the Class A FCC limits.

"This radio apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications."

Le présent appareil numerique n' émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numeriques de la class A prescrites dans le Réglement sur le brouillage radioélectriques edicté par le ministere des Communications du Canada.

Disclaimer

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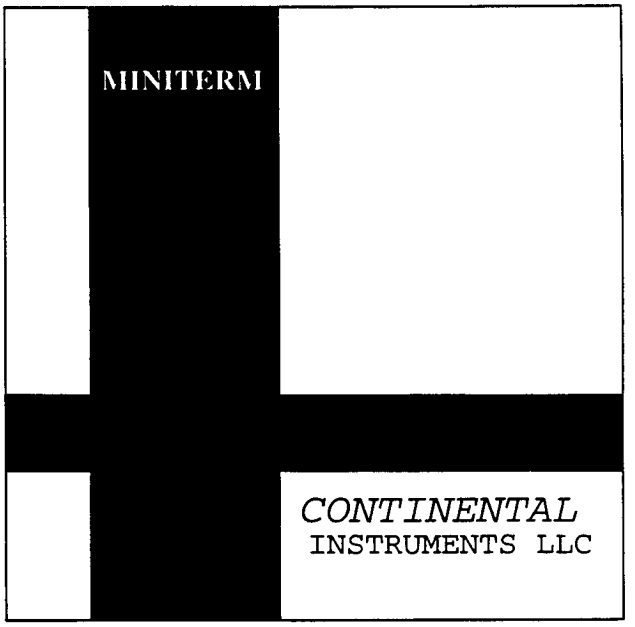


Figure 1 - Miniterm Cabinet

Description

The Miniterm is a fully programmable, self contained, 2-door access control system that offers users flexibility, expandibility, and simplicity. Operating as a stand-alone unit or within a network, each Miniterm makes independent access control decisions.

The Miniterm accepts Wiegand, Magnetic Stripe, and Proximity card readers, and keypads to control the access functions for two individual sites (entrances/exits). It supports as many as eight accessory alarm devices including door contact sensors, door bypass switches, or other related detection devices. Five on-board Form C relays support door locking mechanisms, door alarm shunts, and console functions.

The Miniterm features a user-programmable, on-board database that supports a maximum of 4000 card holders.

The Miniterm uses an on-board 2.4 Amp Hour (AH) backup battery to carry out full access control functions for a period of four hours in the event of an AC power supply loss.

In addition, an internal lithium battery protects the on-board database and programmed operating instructions from loss for a period of ten months. In the event of a total failure of the AC power supply *and* the backup battery, the Miniterm would immediately be ready for full operating capability once a source of operating power was re-established.

For enhanced site access control requirements, multiple Miniterm units (a maximum of 63) may be networked together with other Continental Instruments products including Superterm, Smarterm, and Microterm. A Miniterm network may be configured to operate in a repeater mode or in a multidrop mode, using the RS-422 communications protocols.

A single host computer may be used to manage and program one Miniterm or a fully developed network of Miniterms, saving equipment and installation costs, database entry/deletion procedures, and monitoring individual access usage.

Regulatory Standards

Regulatory Considerations for Miniterm Installations

The Miniterm has been designed to standards that were devised to assure safe and reliable performance. Verification that these objectives have been met was delegated to Underwriters Laboratory (UL), the most established, nationally recognized testing laboratory (NRTL).

The Miniterm is listed to UL 1950, UL 294, and UL 1076 specifications.

Specification Explanations

The following section outlines some of the benefits associated with having the Miniterm listed to the particular UL specification.

UL 1950 - Safety of Information Technology Equipment

Meeting practical needs for a safe installation, including protection of service personnel.

Satisfying a customer's contractual requirement.

Compliance with local building codes.

Provides evidence of diligent efforts to provide protection against shock, fire, and other hazards in a liability situation.

The UL1950 standard for Safety of Information Technology Equipment, including Electrical Business Equipment, certifies that the Miniterm components, construction, materials, and operation where examined by UL staff for hazards due to electrical shock, fire, or mechanical characteristics. The Miniterm was tested and found compliant to UL standards against current leakage in the protective ground circuit, and against electrical breakdown when subject to high electrical potentials.

The UL1950 standard has been adapted for the US market from the European IEC950 standard. While there are detailed points of difference where the UL standard is more or less stringent than the European standard, compliance with the UL standard is a strong indication the the Miniterm will meet or exceed the safety requirements for the European Union.

UL294 - Access Control System Units

The product survives high voltage power line and signal line electrical transients.

Endurance proven by verifying operation of individual access circuits for over 100,000 cycles at the maximum load rating.

Affords some confidence that the installation will survive physical attack without allowing invalid access to an area.

Effective backup power and recharge functions that assure four hours of operation with the supplied standby batteries.

UL1076 - Proprietary Burglar Alarm Units and Systems

The UL1076 standard for Proprietary Burglar Alarm Units certifies that the construction and performance of the Miniterm was examined and tested by Underwriters Laboratories and found to meet every requirement of the standard including:

- Supervision of every alarm input
- Normal operation (without false alarms) while subject to 2400 volt transients
- Safe operation while subjected to environmental stresses such as under-voltage, over-temperature, and mechanical jarring
- The system will continue to record alarms for four hours after a failure of the AC power supply.

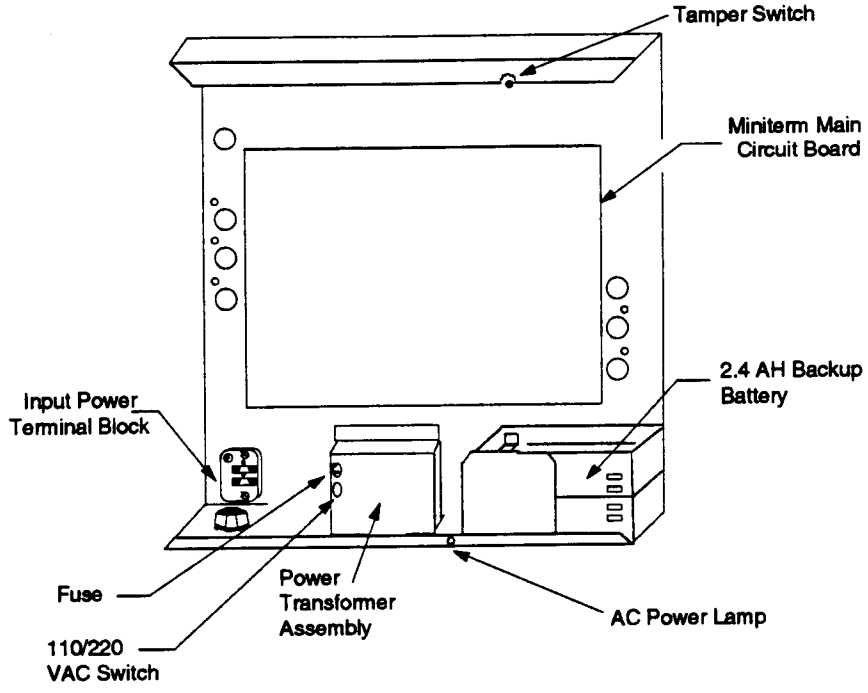


Figure 2 - Miniterm Components

Battery Backup

During power interruptions, the Miniterm continues operating for a maximum of four hours via an on-board 2.4 Amp Hour back-up battery.

The backup battery provides DC power for all Miniterm access control and alarm monitoring functions. After charging for 48-hours, the battery carries the rated load for four or more hours.

Power Transformer Assembly

The step-down transformer provides 14VAC to the on-board linear power supply. An AC power terminal block and grounding screw provide connection points for the three incoming service lines. The 110/220 VAC switch sets the step-down transformer for operation in North America (105-125 VAC, 60 Hz) or in the European Union (207-243 VAC, 50 Hz).

Fuse

The fuse protects the power transformer primary circuit. In North America, a UL-listed, 1/2 amp sol-blo fuse (included) must be used. In the European Union, a 0.250 amp time-delay fuse meeting the IEC standards must be installed.

AC Power Lamp

Mounted on the lower lip of the enclosure, and visible whether the cover is installed or not, this lamp indicates that transformer AC is connected to the board. When the unit is operating from the backup battery, this lamp will be off.

Miniterm Circuit Board

When installed according to this manual, no hazardous voltages are present on this board, and adjustments to the address switch, jumpers, etc., may be safety performed.

Tamper Switch

Located at the top of the enclosure, the tamper switch is activated when the cover is removed.

Note: The activation of the tamper input also enables the Status LEDs. If the tamper switch is depressed, all status LEDs except the AC indicator will turn off.

INSTALLATION

Only qualified service personnel familiar with all local building codes should attempt this installation. Take appropriate safeguards to avoid unintentional operation by employees and maintenance personnel working about the premises.

The installation of each Miniterm system should be completed and tested on its own before connecting into a network. Any possible wiring or installation problems are magnified many times by the complexity of the network.

Once an individual system has been tested and found operating satisfactorily, it can then be safely brought into the network.

The following warnings are designed for the safety of the Miniterm install/service technician and for the continued proper function of the Miniterm unit.

About This Manual

This manual describes the installation of the Miniterm Access Control Unit and the specific accessories that connect to it.

NOTES: Notes are included with a procedure informing the technician about related material.

CAUTION: Cautions indicate that a particular process requires special attention.

WARNING: Warnings indicate that a particular process exposes the technician to live circuits or that making wrong connections can lead to equipment failure.

Precautions

CAUTION: Do not place accessory circuit cables in the same conduit sections containing power cables.

CAUTION: Prevent the risk of a fire by replacing **ALL** fuses with **the same type and rating.**

WARNING: The Power Transformer Assembly covers areas which carry hazardous voltages. **DO NOT** probe under this cover and expose yourself to a shock hazard.

WARNING: The risk of a serious electrical shock exists if the wiring harness power connector is removed from the Miniterm circuit board, but AC power remains live at the AC Input Terminal Block (see Figure , page 8).

WARNING: Prevent shock during servicing when the POWER ON lamp is disconnected. To determine if power is present, check the status of the AC LED on the bottom edge of the Miniterm enclosure. Also check the top LED (AC) on LBD1 on the Miniterm circuit board. The LEDs illuminate if power is present.

Installation Preparation

First, select a mounting location within a secure, limited access area (see Figure 3). Ensure that an "earth ground" connection is available near the Miniterm installation site. Note the type of wall construction that the enclosure will be secured to.

- Determine that adequate space is available for mounting the Miniterm cabinet on a wall with no interference from wires, pipes, or other obstructions.
- The Miniterm cabinet requires a space of 15.25 (H) x 12.5 (W) x 4.0 (D) inches for installation.
- Route the cables through the knockouts in the rear of the enclosure. The power may be routed through the knockout adjacent to the power terminal block.

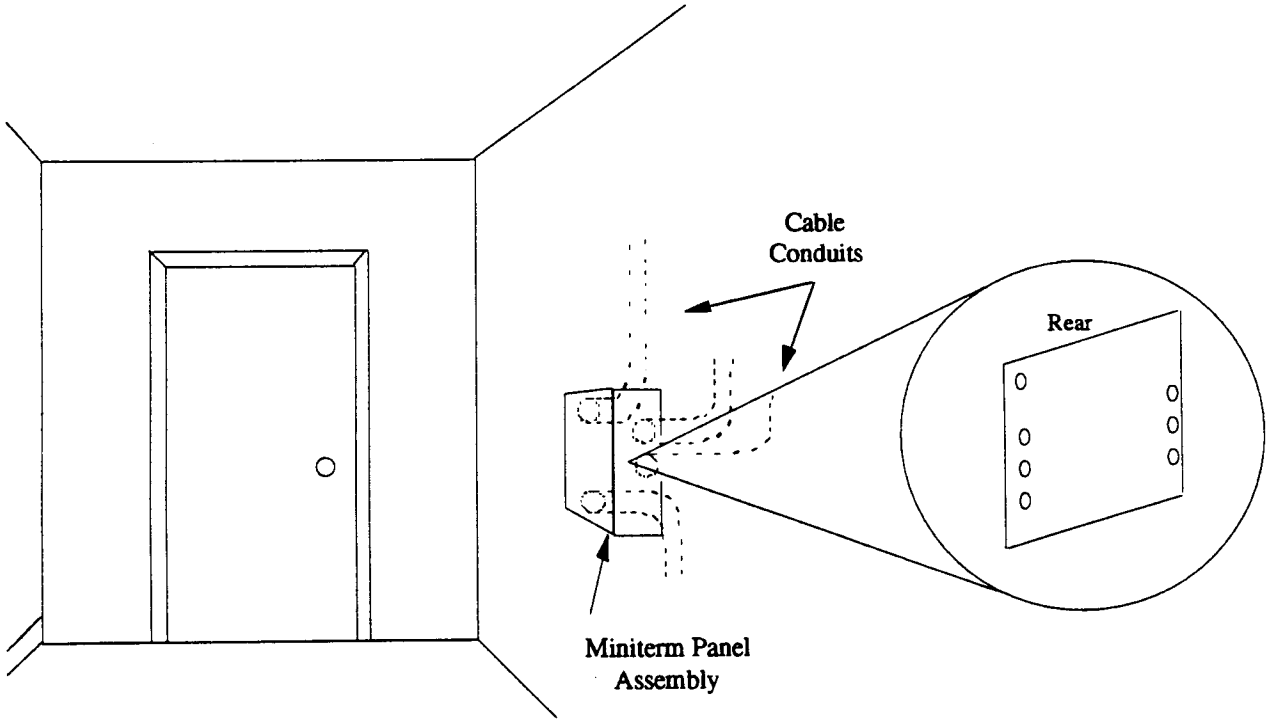


Figure 3 - Miniterm Installation Location

Cabinet Mounting

Inspect the mounting surface around the proposed installation site. The mounting surface must be capable of supporting 18 pounds (8.2Kg) plus any additional weight of the installation hardware.

CAUTION

Use only suitable mounting hardware for the type of wall construction encountered.

1. Determine the Miniterm cabinet mounting location.
2. Mark the four mounting holes against the mounting surface using the Miniterm cabinet as a template or using the measurements provided in Figure 4.

NOTE: Mark the small oval portion of the cabinet screw holes (see Figure 5, Detail A).

3. Place the Miniterm cabinet out of the way.
4. Drill pilot holes to the required depth and size for the mounting screws.
5. Insert the mounting screws into the wall. Leave approximately one quarter of the screw's length protruding from the wall.

NOTE: Do not tighten screws completely at this time.

6. Place the Miniterm cabinet over the mounting screws.
7. Secure the Miniterm cabinet to the mounting surface and tighten the remaining length of the screws.

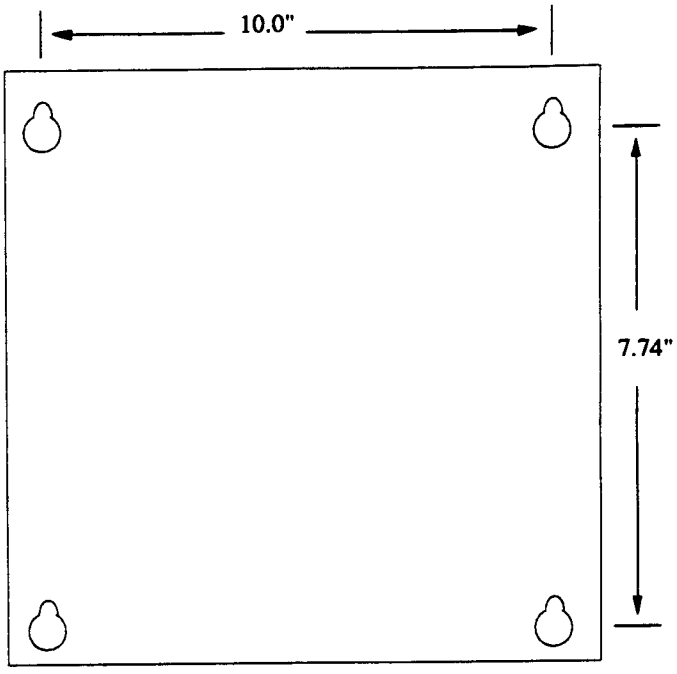


Figure 4 - Miniterm Cabinet Mounting Hole Dimensions

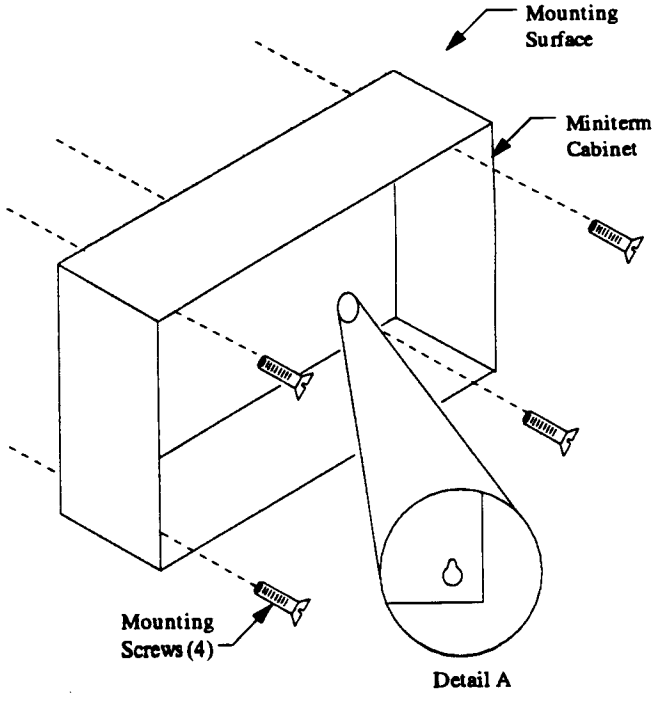


Figure 5 - Miniterm Mounting Screws

Cable Routing

All associated cabling for the Miniterm is divided into two categories:

Power Cables and Accessory Relay Devices

This category contains all the power cables servicing the Miniterm and any accessory relay controlled device(s) connected to it.

Communication Cables

This category contains all the communication cabling between the Miniterm and all communication devices, all alarm devices, and all card reader devices.

NOTE: For proper operation of the Miniterm route **EACH** category of cabling in **SEPARATE** conduit (i.e., **DO NOT** mix alarm or communication cables in the same conduit as relay or power cables).

Incoming Power Conduit Knockout

The Miniterm System requires 120VAC/60Hz or 230VAC/50Hz to the AC Input Power Terminal Block (see Page 11). The power cabling is delivered to the Miniterm through a knockout located on the left side cabinet bottom wall (see Figure 6). The knockout accepts EIA standard 1-inch or 3/4-inch conduit connectors.

NOTE: All wiring must conform to National Electric Code (NEC), NFPA 70, as well as any local building codes.

Accessory Conduit Knockouts

All cabling for the Miniterm is routed through EIA standard two-size knockouts located on the rear of the cabinet to the right and left sides of the board (see Figure 6). The outer knockout size accepts EIA standard 1-inch conduit connectors and the inner knockout accepts EIA standard 3/4-inch conduit connectors.

Grounding Accessory Drain and Shield Wires

Ensure electromagnetic compatibility and reliable performance by keeping all accessory drain and shield wires as short as possible.

All accessory drain and shield wires (except RS-232) connect to ground posts mounted along the knockout strips on both sides of the Miniterm cabinet (see Figure 6).

The following procedures assure proper installation of all drain and shield wires.

- Carefully remove the cable jacket after the cable enters the Miniterm cabinet.
- Place the drain and shield wires under the ground post screw.
- Verify a good connection and tighten the ground post screw.
- Connect the accessory wires to the appropriate terminal strip on the Miniterm circuit board.

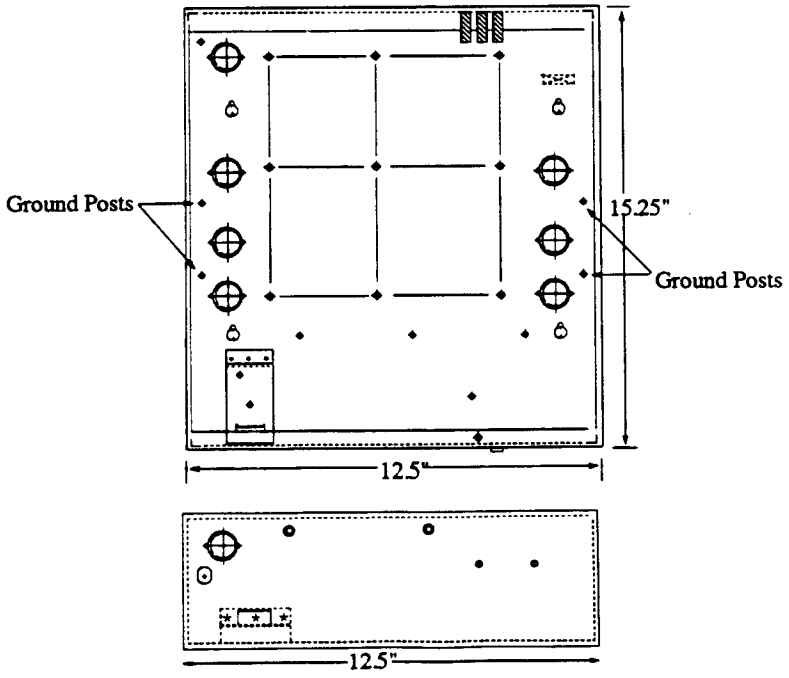


Figure 6 - Cabling Conduit Knockouts

POWER CONNECTIONS

AC Power Source Grounding

The Miniterm main circuit board has built-in surge suppression devices. The surge suppressors require a good earth ground connection to operate effectively.

Check the DC resistance between the 120/230VAC power ground terminal and a known earth ground such as a metal water pipe or structural steel building component.

CAUTION

DC resistance between the 120VAC power ground terminal and a known earth ground must be no greater than 50Ω.

If the DC resistance is acceptable, install the 120/230VAC power cabling using the ground terminal as the earth ground.

120/230VAC Power

The Miniterm system requires 120/230VAC, 50/60 Hz voltage. The incoming 120/230VAC source voltage connects to the AC input power terminal block located in the lower left-hand corner of the Miniterm cabinet (see Figure 7). A switch located on the transformer assembly bracket is used to select 120VAC or 230VAC.

This switch must be set before applying power. Set switch to "110" for operation at 105-125VAC, and "220" for operation at 207-243VAC. Install the 0.500A UL-approved fuse (supplied) for 120VAC operation. Install the 0.250A IEC recognized fuse for 230VAC operation.

NOTE: Use of a dedicated, unswitched 120/230VAC power source results in optimal performance with minimum interference.

WARNING

Verify that the AC source voltage is switched off at the breaker panel before proceeding with connections.

Table 1 lists the incoming 120/230VAC source voltage connections to the AC Input terminal Block.

Table 1 - AC Input Terminal Block Connections

Incoming 120VAC	Wire Color	AC Input Terminal Block
Line	Black	L
Neutral	White	N
Ground	Green	⏚

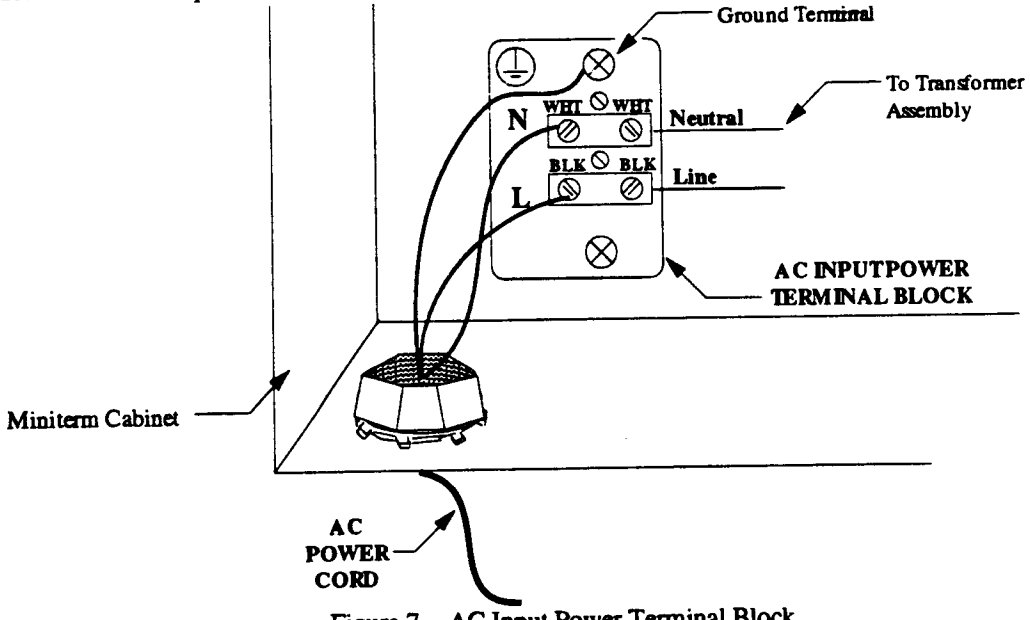


Figure 7 - AC Input Power Terminal Block

Miniterm Circuit Board Layout

The Miniterm circuit board (see Figure 8) provides wiring terminal strips for external access control devices (card readers, keypads, alarms, etc.).

The following descriptions in this manual reference the Miniterm main circuit board, shown below, and use cutaway drawings to identify specific locations on the circuit board.

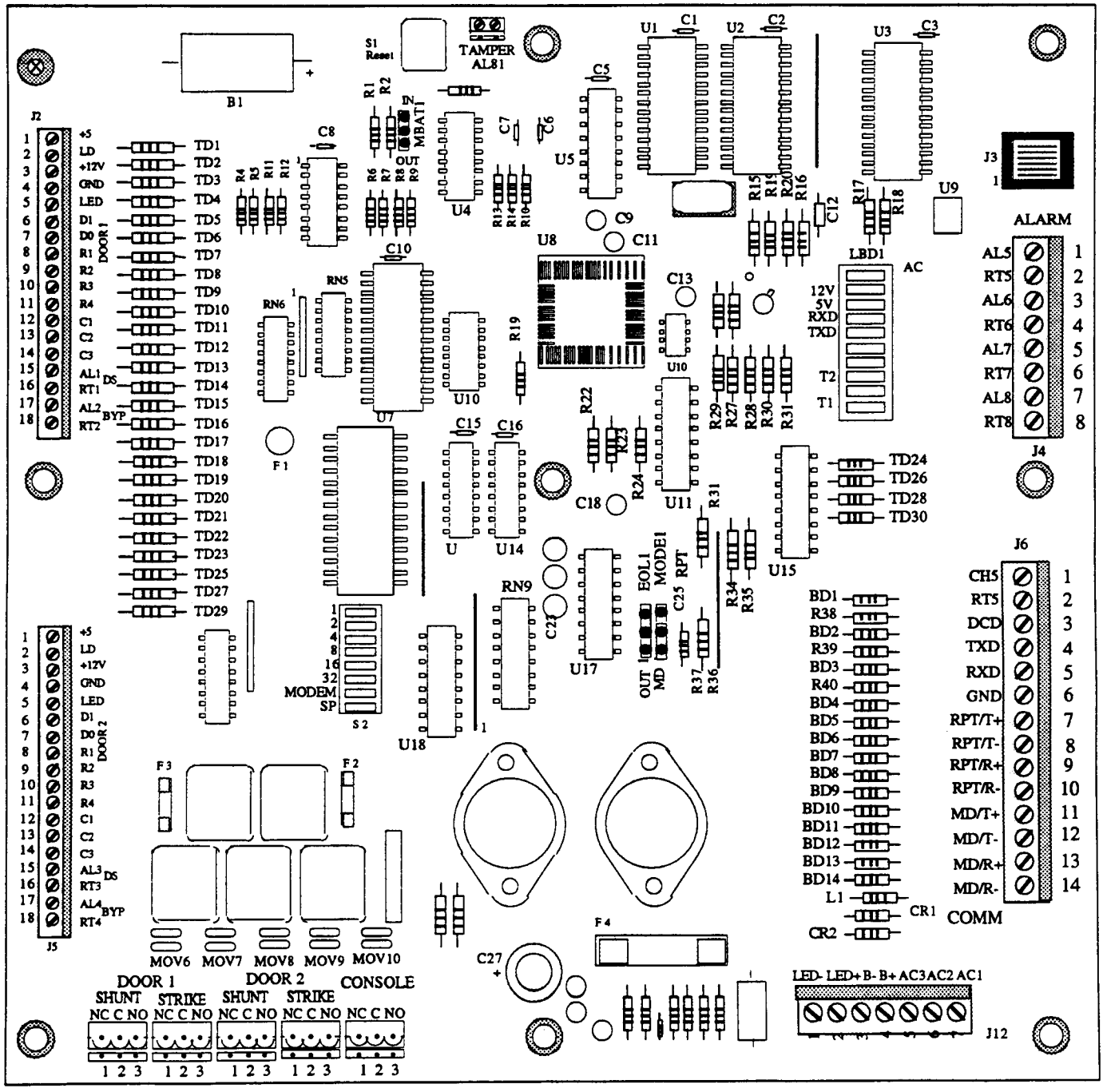


Figure 8 - Miniterm Circuit Board Layout

Step-Down Transformer Connection

The Miniterm circuit board is powered from an internal power supply driven by a separate step-down transformer. The step-down transformer is mounted on the bottom ledge of the Miniterm cabinet (see Figure 2, page 3, Location of Miniterm Components).

The Step-Down transformer connects to the Miniterm circuit board through the Power Connector, J12 (see Figure 8, page 9, Miniterm Circuit Board Layout) .

Table 2 lists the connections between the Step-Down Transformer and the Miniterm Power Connector. Refer to Figure 9, page 11, while reading Table 2 for Step-Down Transformer to Miniterm Circuit Board connections.

Table 2 - Connection Table for Step-Down Transformer

Power Input Terminal Strip		Transformer Assembly	
Pin #	Function	Wire Color	Function
1	LED -	--	--
2	LED +	--	--
3	B -	--	--
4	B +	--	--
5	AC3	Brown	AC Power
6	AC2	Red	GND
7	AC1	Brown	AC Power

Battery Backup Connection

During power interruptions, the Miniterm continues operating for a minimum of four hours via an on-board 2.4A-hour back-up battery. The backup battery system is composed of two 12V batteries in parallel.

Table 3 lists the connections from the Backup Battery to the Miniterm Power Connector. Refer to Figure 9, page 11, while reading Table 3 for Backup Battery to Miniterm Circuit Board connections.

Table 3 - Connection Table for Battery Backup

Power Input Terminal Strip		Backup Battery
Pin #	Function	Function
1	LED -	
2	LED +	
3	B -	Neg (-) post
4	B +	Pos (+) post
5	AC3	
6	AC2	
7	AC1	

WARNING

Do NOT connect the Backup Battery or provide AC source voltage to the Miniterm until all accessory cabling is completed.

AC LED Connection

An LED mounted on the bottom edge of the Miniterm enclosure indicates the presence of AC power to the unit. The AC LED is factory-wired and requires no adjustment.

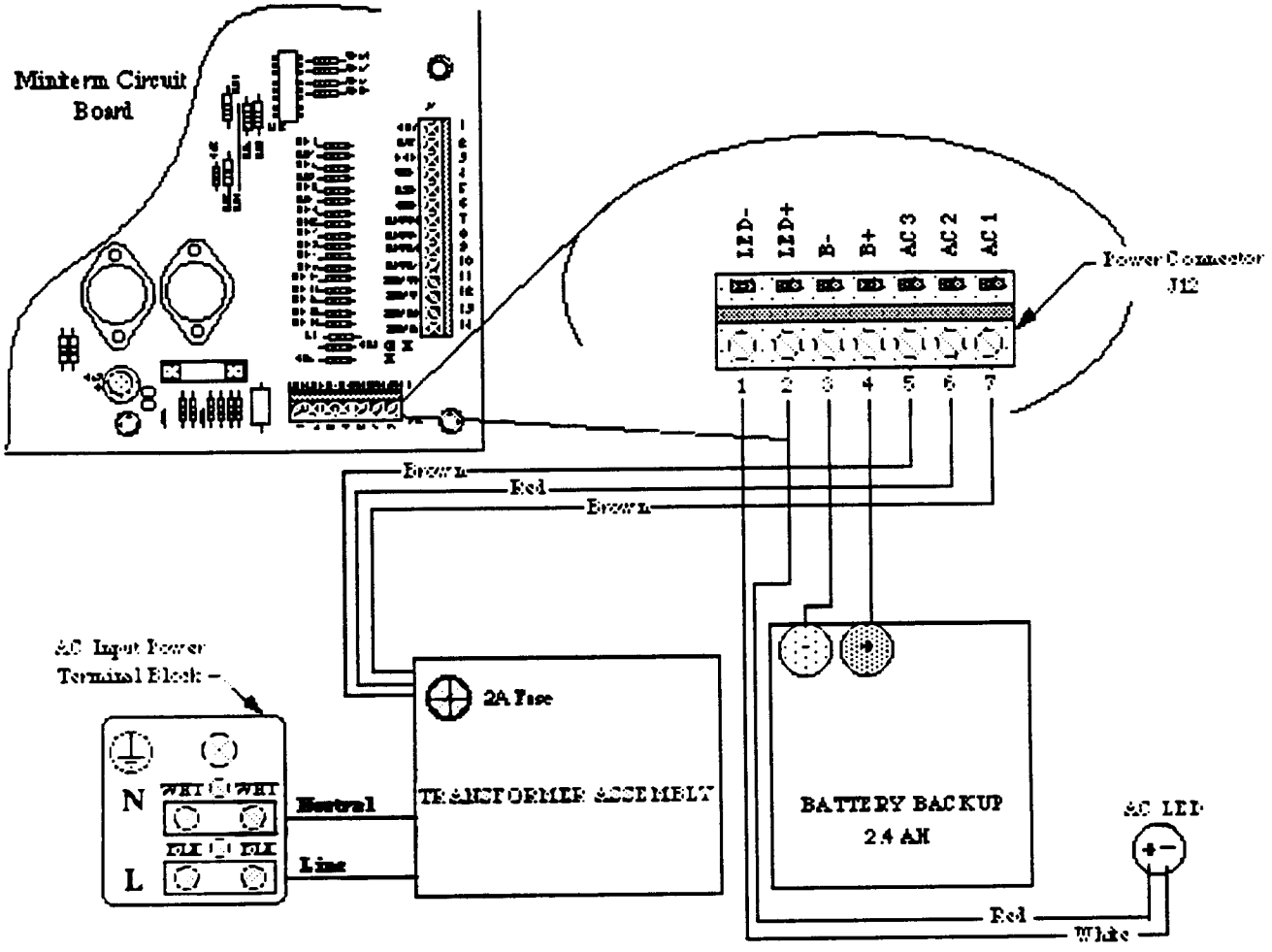


Figure 9 - Connecting Transformer, Battery, and Power Supply to Miniterm Circuit Board

DOOR CONNECTIONS

Inputs from card readers, keypads, and door alarms connect to the Miniterm via two terminal strips labeled Door 1 (J2) and Door 2 (J5).

Wiegand/Proximity Reader Connections

Wiegand/Proximity Readers connect to terminal strips Door 1 (J2) and Door 2 (J5) (see Figure 10). Terminal strips Door 1 and Door 2 follow the same connection procedures.

Table 4 lists the connections between the Door 1 and Door 2 terminal strips and the Wiegand/Proximity Readers.

Table 4 - Connection Table for Wiegand/Proximity Reader

DOORx Terminal Strip

Pin #	Function	Wire Color
1	+5VDC	Red*
3	+12VDC	Red*
4	Ground	Black
5	LED	Brown
6	Data-1/DAT	White
7	Data-0/CLK	Green

* Proximity Reader may be powered by either +5VDC or +12VDC

Wiegand/Proximity Reader Cable Requirements

Wiegand/Proximity Readers require a 5-conductor cable between the Miniterm and the particular unit (see Figure 10). **Do not use twisted pair cable.**

NOTE: Readers may have a combined maximum current draw of 200mA (+12VDC) or 200mA (+5VDC) per Miniterm Circuit Board.

EXAMPLE: If two identical +5VDC Readers are connected to one Miniterm, each Reader could draw up to 100mA.

Table 5 lists the cable gauge-vs-length requirements for proper operation of the Miniterm and a Wiegand/Proximity Reader.

Table 5 - Cable Requirements for Wiegand/Proximity Readers

Unit	Distance (maximum)	Wire Gauge
Wiegand Reader	1000ft/305m	22AWG Shielded w/drain**
Proximity Reader	1000ft/305m	18AWG Shielded w/drain

** 500ft/153m maximum for unbuffered Wiegand units.

CAUTION

Keep all drain and cable shield wires between the Miniterm and any Wiegand/Proximity Readers short. Connect drain and cable shield wires to the ground posts located on both sides of Miniterm cabinet. **DO NOT** ground drain wires and cable shields at any other point.

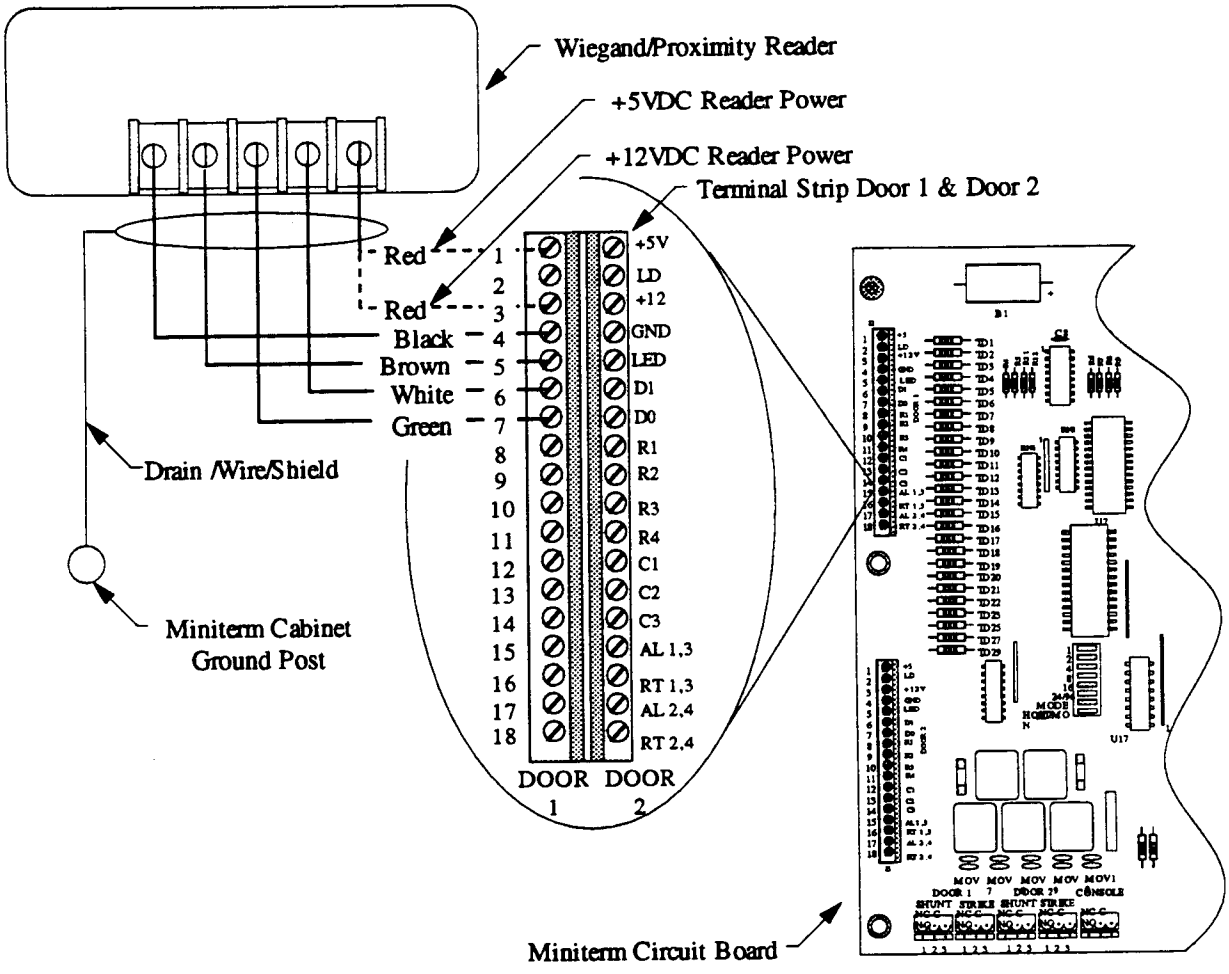


Figure 10 - Wiegand/Proximity Reader Connection to Miniterm Board

Magnetic Stripe Reader Connection

Magnetic Stripe Readers connect to terminal strips Door 1 and Door 2 (see Figure 11). Terminal strips Door 1 and Door 2 follow the same connection procedures.

Table 6 lists the connections between the Door 1 and Door 2 terminal strips and the Magnetic Stripe Reader.

Table 6 - Connection Table for Magnetic Stripe Reader

DOORx Terminal Strip Pin #	Function
1	+5VDC
4	Ground
5	LED *
6	Data-1/DAT
7	Data-0/CLK

***NOTE:** If the Magnetic Stripe Reader does not feature an LED indicator, substitute with a 4-conductor cable.

Magnetic Stripe Reader Cable Requirements

Magnetic Stripe Readers require a 5-conductor cable between the Miniterm and the particular unit (see Figure 11). **Do not use twisted pair cable.**

Table 7 lists the cable gauge-vs-length requirements for proper operation of the Miniterm and Magnetic Stripe Readers.

Table 7 - Cable Requirements for Magnetic Stripe Reader

Unit	Distance (maximum)	Wire Gauge
Magnetic Stripe Reader	1000ft/305m	22AWG Shielded w/drain

CAUTION

Keep all drain and cable shield wires between the Miniterm and Magnetic Stripe Readers short. Connect drain and cable shield wires to the ground posts located on both sides of Miniterm cabinet. **DO NOT** ground drain wires and cable shields at any other point.

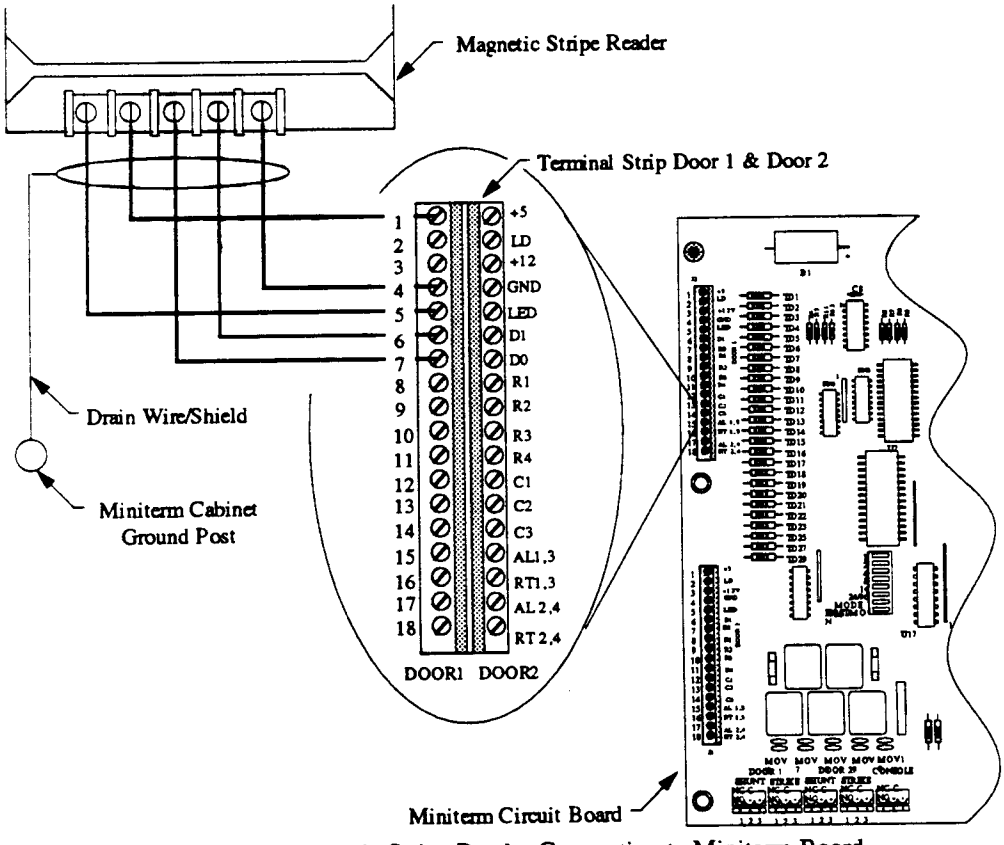


Figure 11 - Magnetic Stripe Reader Connection to Miniterm Board

Keypad Connection

Twelve-position keypads connect to terminal strips Door 1 and Door 2 (see Figure 12). Terminal strips Door 1 and Door 2 follow the same connection procedures.

Table 8 lists the connections between the Door 1 and Door 2 terminal strips and the keypad.

Keypad Cable Requirements

Keypads require a 22AWG, 7-conductor, stranded, shielded, cable with drain wire between the Miniterm and the particular unit (see Figure 12). **Do not use twisted pair cable.**

Table 9 lists the cable gauge-vs-length requirements for proper operation of the Miniterm and the Keypad.

Table 8 - Connection Table for Keypad Reader

DOORx Terminal Strip Pin #	Function	Wire Color
8	Row 1	Brown
9	Row 2	Red
10	Row 3	Orange
11	Row 4	Yellow
12	Column 1	Green
13	Column 2	Blue
14	Column 3	Violet

Table 9 - Cable Requirements for Keypads

Unit	Distance (maximum)	Wire Gauge
Keypad	1000ft/305m	22AWG Shielded w/drain

CAUTION

Keep all drain and cable shield wires between the Miniterm and Keypads short. Connect drain and cable shield wires to the ground posts located on both sides of Miniterm cabinet. **DO NOT** ground drain wires and cable shields at any other point.

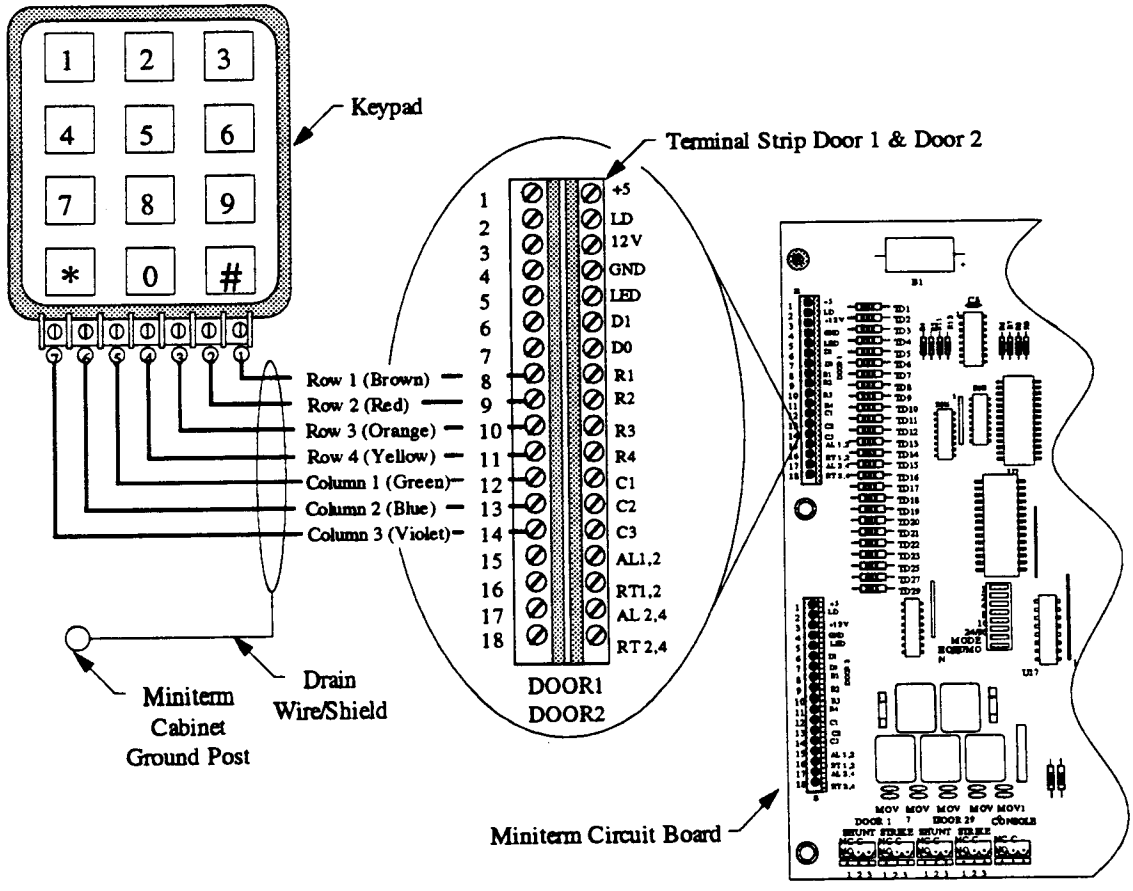


Figure 12 - Keypad Connection to Miniterm Board

Door Status Sensor Connection

Door Status sensors connect to the Miniterm through two terminal strips labeled Door 1 and Door 2 (see Figure 13).

Table 10 lists the connections between the Door 1 and Door 2 terminal strips and the Door Status sensor.

Table 10 - Connection Table for Door Status Sensor

DOORx Terminal Strip Pin #	Signal	Door Status Sensor Function
15	Alarm (AL 1,3)	Positive
16	Return (RT 1,3)	Negative

NOTES: Refer to page 20, Alarm Connections, to configure Door Status sensors as supervised alarms.

Door Status sensor connections to the Miniterm are not sensitive to the normal state of the switch. For Door 1 use Alarm 1, for Door 2 use Alarm 3.

Door Status Sensor Cable Requirements

Door Status sensors require a 22AWG, 2-conductor, stranded, shielded, cable with drain wire between the Miniterm and the particular unit (see Figure 13). Do not use twisted pair cable.

Table 11 lists the cable gauge-vs-length requirements for proper operation of the Miniterm and the Door Status sensor.

Table 11 - Cable Requirements for Door Status Sensor

Unit	Distance (maximum)	Wire Gauge
Door Status Sensor	1000ft/305m	22AWG Shielded w/drain

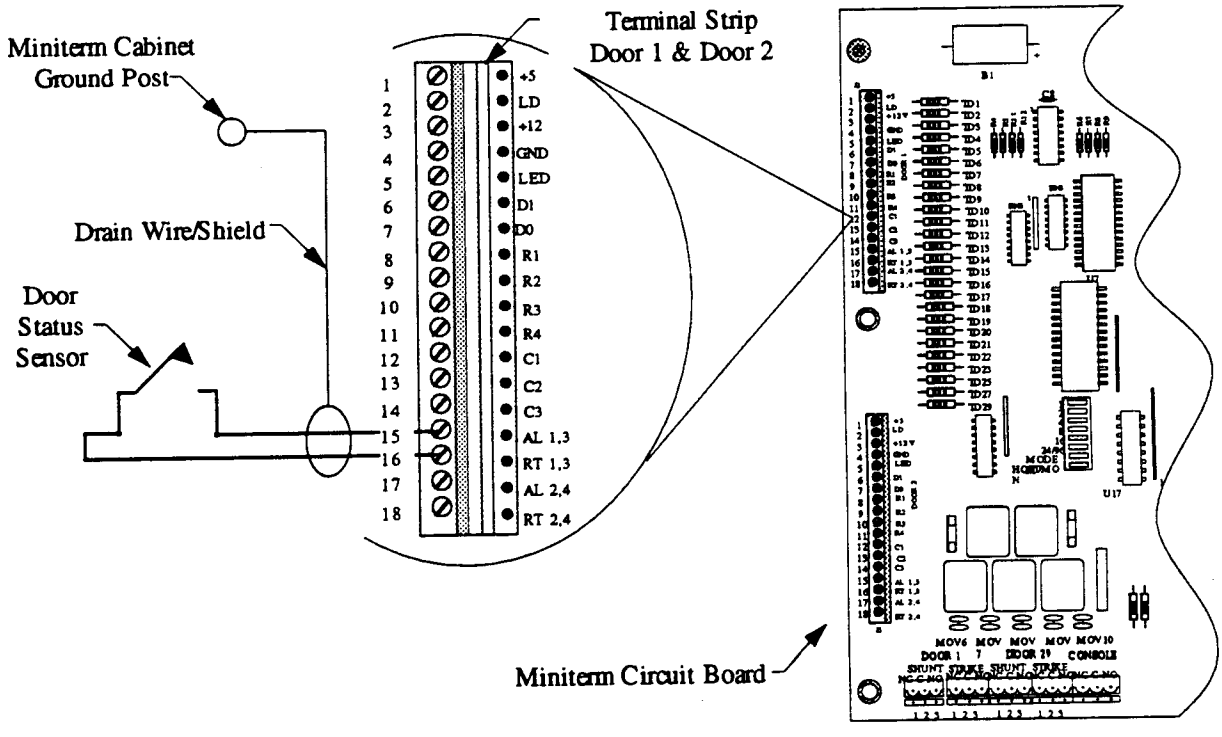


Figure 13 - Door Status Sensor to Miniterm Connections

Request-to-Exit (Bypass) Sensor Connection

Request-to-Exit sensors (also known as Bypass sensors) work in conjunction with Door Status Sensors to provide complete facility entry and exit control. The Request-to-Exit sensor input connects to the same Miniterm terminal strip (Door 1 and Door 2) that the associated Door Status Sensor connects to (see Figure 14).

Table 12 lists the connections between the Door 1 and Door 2 terminal strips and the associated Request-to-Exit sensor.

Table 12 - Connection Table for Request-to-Exit Sensor

DOORx Terminal Strip Pin #	Signal	Request-to-Exit Sensor Function
17	Alarm (AL 2,4)	Positive
18	Return (RT 2,4)	Negative

NOTE: The Request-to-Exit sensor connections to the Miniterm are not sensitive to the normal state of the switch. For Door 1 use Alarm 2, for Door 2 use Alarm 4.

Request-to-Exit Sensor Cable Requirements

Request-to-Exit sensors require a 22AWG, 2-conductor, stranded, shielded, cable with drain wire between the Miniterm and the particular unit (see Figure 14). Do not use twisted pair cable.

Table 13 lists the cable gauge-vs-length requirements for proper operation of the Miniterm and the Request-to-Exit sensor.

Table 13 - Cable Requirements for Request-to-Exit Sensor

Unit	Distance (maximum)	Wire Gauge
Request-to-Exit Sensor	1000ft/305m	22AWG Shielded w/drain

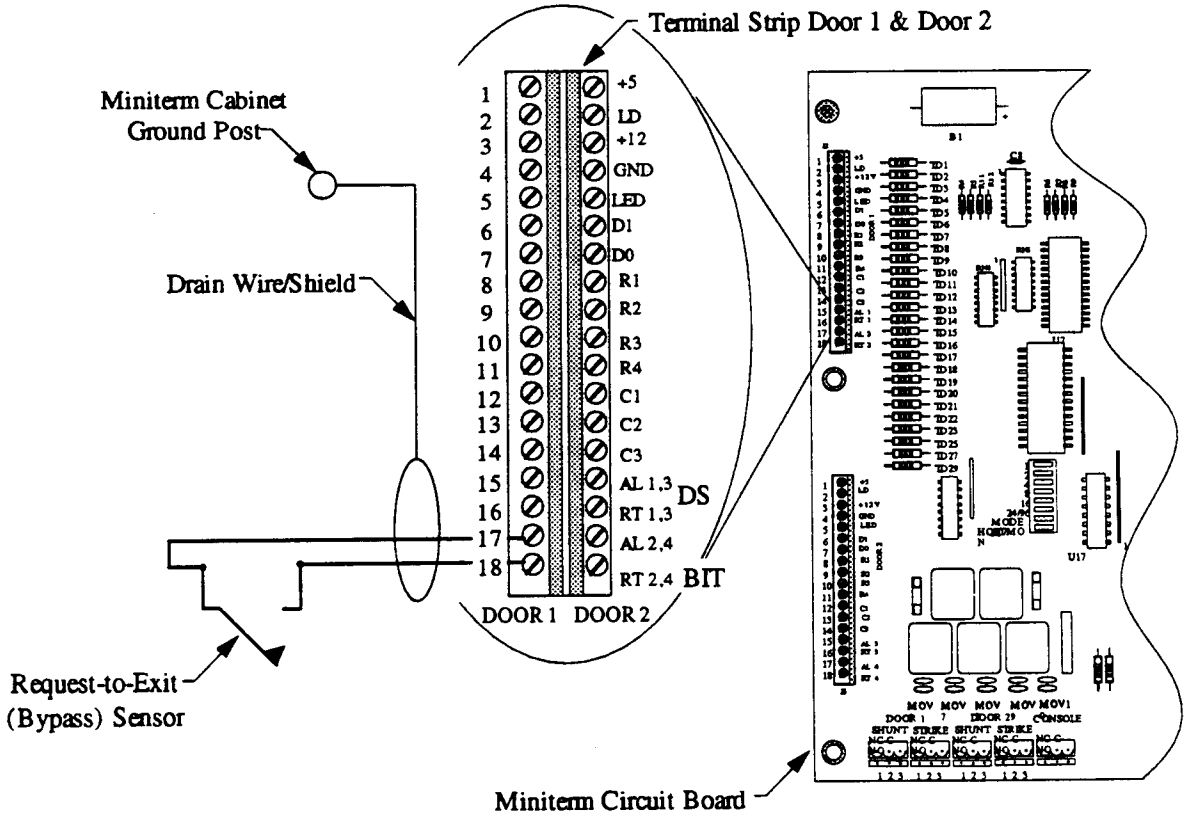


Figure 14 - Request-to-Exit Sensor to Miniterm Connection

RELAY CONNECTIONS

Description

The Miniterm provides five Form C relays to control door strikes, door alarm shunts, console functions, etc.

The relays are divided into three categories:

Door Strike Relays

Door Shunt Relays

Console Relay

Door Strike Relays

Two relays are designated as door strike relays and work in conjunction with Wiegand/Proximity readers, Magnetic Stripe readers, and Keypad to control access at particular door sites.

The door strike relays are labeled Door 1 Strike (J7) and Door 2 Strike (J9) and are located on the bottom of the Miniterm Circuit Board (see Figure 15).

The door strike relays are fused and limited to 3.15 Amps.

Door Shunt Relays

Two relays are designated as Door Shunt relays and are typically used to control door alarm shunts.

NOTE: Although these relays are labeled as Door Shunt relays, they are user-programmable and may be used for other low-voltage control functions.

The Door Shunt relays are labeled Door 1 Shunt (J8) and Door 2 (J10) and are located on the Miniterm Circuit Board (see Figure 15).

Console Relay

The Console Relay may be linked to specific events such as invalid door access, alarm input, and tamper switch input. The console relay is linked to an event through software.

The console relay is labeled CONSOLE (J11) and is located on the far right hand side of the relay terminal strips on the Miniterm Circuit Board (see Figure 15).

Relay Characteristics

The relays on the Miniterm Circuit Board all share the following characteristics:

- Form C relay with a contact rating of 3A at 28VDC
- The Normally Open (NO), and the Normally Closed (NC) contacts are the default state of non-energized relays.
- Metal oxide varistors (MOVs) are placed across the contacts to reduce electrical noise. The MOVs limit any noise caused by the strike coil to 56 volts.

NOTES: Installing a 56V MOV at the strike coil further reduces possible noise input.

Additional MOVs are available from Continental Instruments as part number 480-1048 (RV0005).

Because of this noise, door strike wiring **MUST NOT** be put in the same conduit with other wiring.

Using door strikes with a coil voltage greater than 28VDC or 24VAC requires using external relays that can be driven by Miniterm relays.

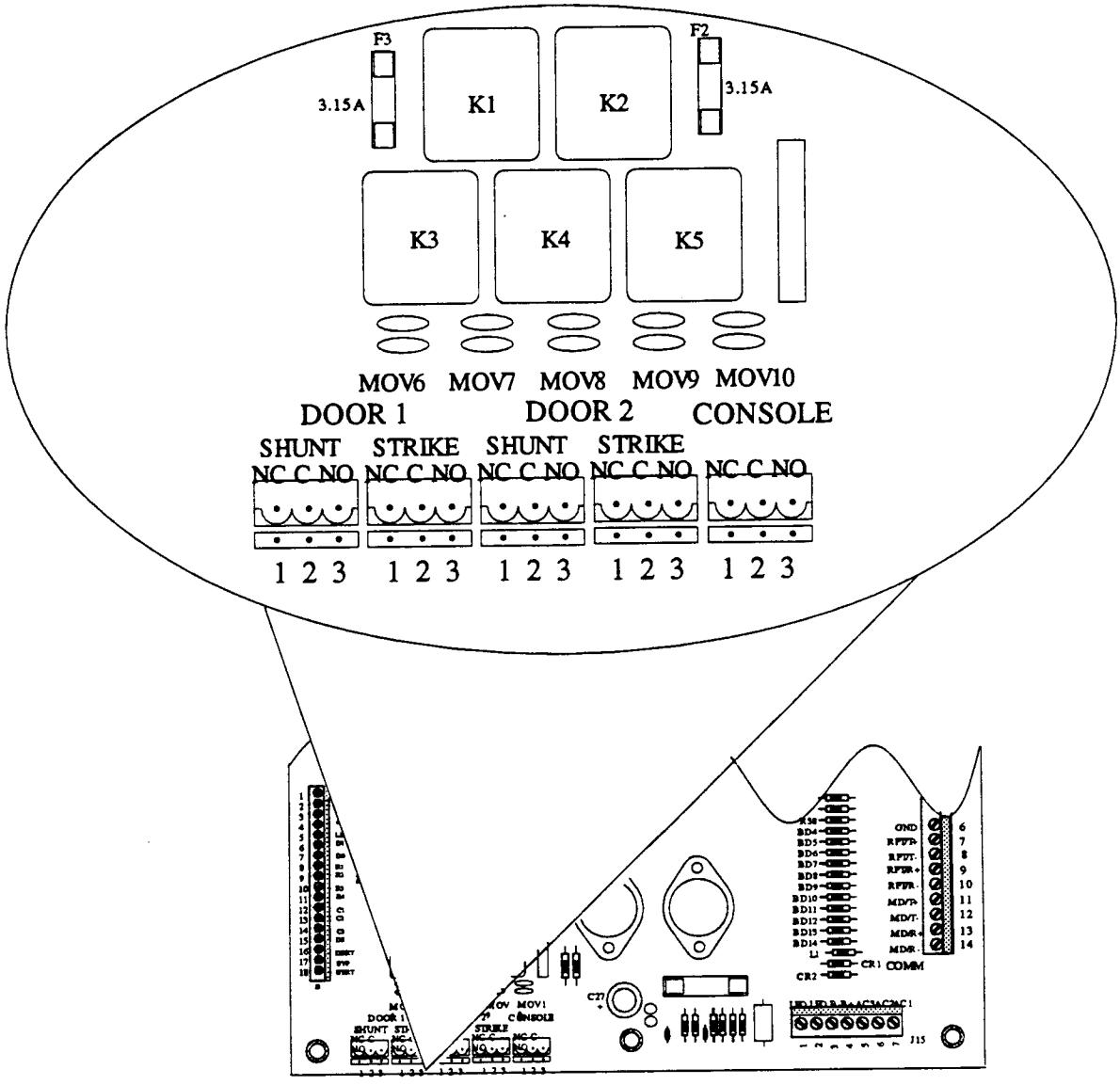


Figure 15 - Miniterm Circuit Board Relay Location

ALARM CONNECTIONS

Description

in addition to the four door alarm inputs, the Miniterm has four auxiliary alarms located on the ALARM (J4) terminal strip.

The auxiliary alarm inputs may be used for dry contact (unsupervised) or supervised alarms.

Supervised Alarms

Supervised alarms provide monitoring of alarm inputs for fault or tamper conditions. Two additional alarm states may be detected by installing two 1KΩ resistors near the alarm contacts.

In addition to the standard normal or abnormal alarm conditions, the supervised alarms reports *Open* or *Short* conditions.

- An **Open** condition is the result of a cut wire.
- A **Short** condition is the result of shorting the alarm wires together.

Configuring an Alarm in the Supervised Condition

1. Use two 1KΩ, 1/4W, ±5% carbon film resistors per alarm.

2. Install R1 in parallel with the alarm contacts (see Figure 17).

3. Install R2 in series with the alarm input conductor.

NOTE: For maximum protection, install the resistors close to the alarm contacts and embed them in epoxy.

Table 14 lists the ALARM terminal strip pin numbers and the respective signals.

Table 14 - ALARM Terminal Strip Input Pins

Pin	Signal
1	AL5
2	RT5
3	AL6
4	RT6
5	AL7
6	RT7
7	AL8
8	RT8

Alarm Cable Requirements

Connecting alarm sensors to the Miniterm board requires 22 AWG, shielded, stranded, cable with drain wires. **Do not use twisted pair cable.**

Tamper Switch

The Miniterm cabinet has a built-in tamper switch, TAMPER (J1). The tamper switch is factory wired and requires no adjustment.

NOTE: When the Tamper switch is depressed all LEDs on LBD1, except AC, will extinguish. This is done to save power when the cover is closed.

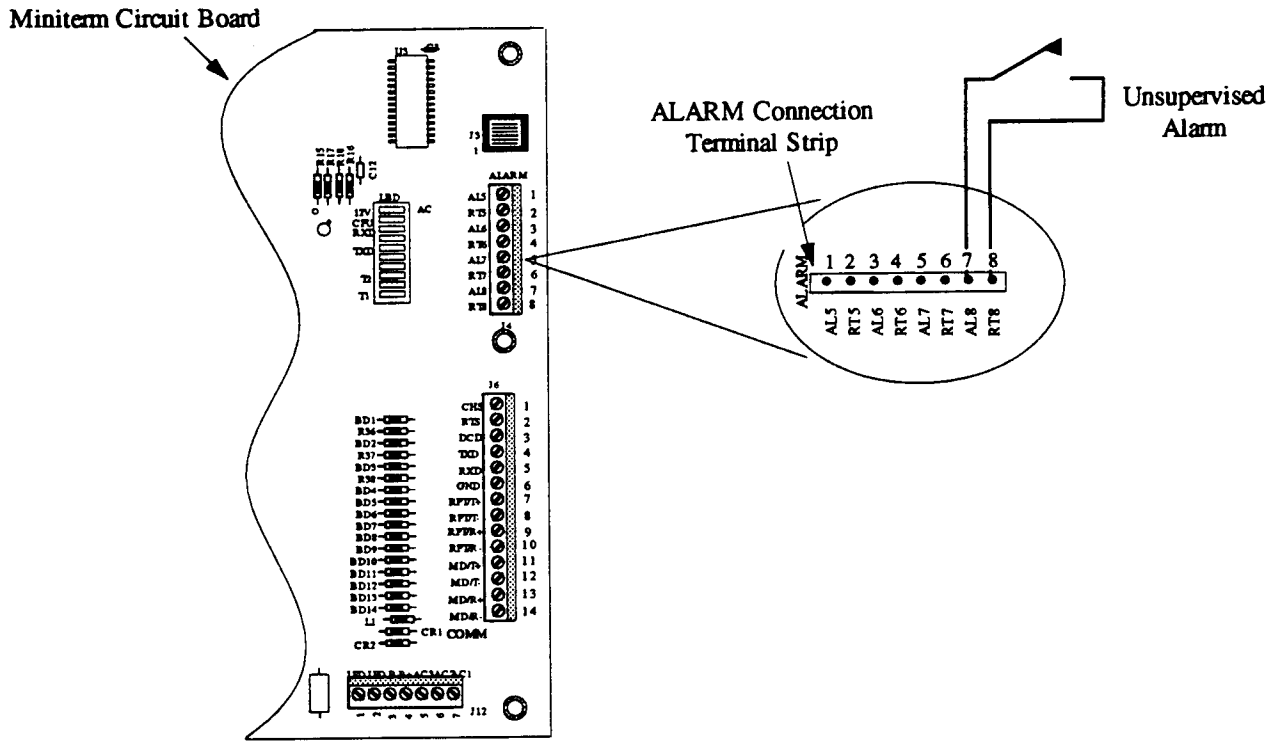


Figure 16 - ALARM Terminal Strip - Unsupervised Alarm Condition

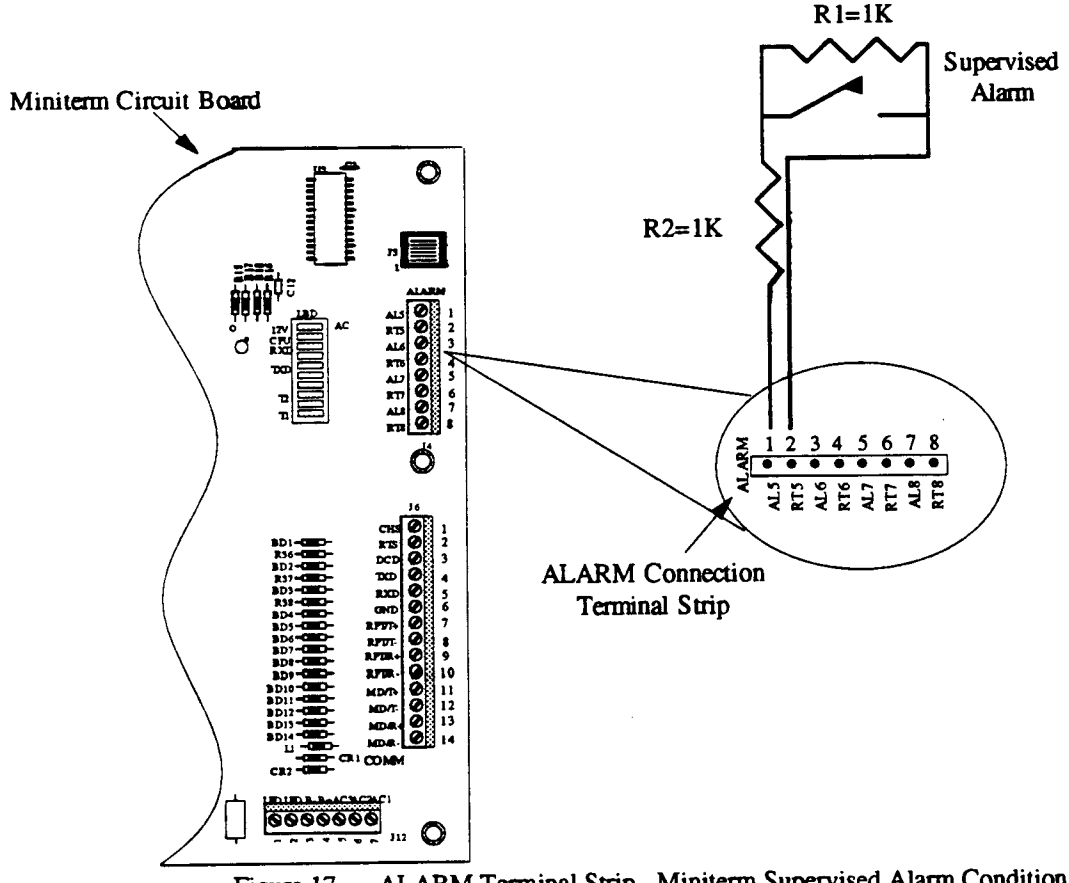


Figure 17 - ALARM Terminal Strip - Miniterm Supervised Alarm Condition

COMMUNICATION CONNECTION

RS-232 Communications - Host/Modem Operation

Operating as a stand-alone system, the Miniterm communicates with a host computer (directly or through a modem) through the RS-232 channel.

Proper RS-232 communications requires observing the EIA standard pin definitions of Data Terminal Equipment (DTE) and Data Control Equipment (DCE).

NOTE: All RS-232 equipment made by Continental Instruments Corporation, including the Miniterm, are configured as DTE devices.

RS-232 Cable Requirements

RS-232 communication between the Miniterm and a host computer/modem require stranded, 3 conductor, 22 AWG cable with shielding and a drain wire. Do not use twisted pair cable.

Table 15 lists the cable gauge-vs-length requirements for proper operation of the Miniterm and the host computer/modem.

Table 15 - RS-232 Cable Gauge-vs-Length

Unit	Distance	Wire Gauge
Host Computer/ Modem	50ft (15.2m) maximum	22AWG

NOTES: A host computer is typically connected to the RS-232 cable using either a DB9-S or a DB25-S connector.

Modems are typically connected to the RS-232 cable using a DB25-P connector.

RS-232 Jumper Settings

RS-232 communications between the Miniterm and a host computer require setting the MODE 1 and EOL 1 jumpers on the Miniterm board. Refer to page 35, EOL1, and page 36, MODE 1 Jumper Settings, for specific information.

NOTE: Operating as a stand-alone system, the Miniterm must be configured in the REPEAT mode.

Address Setting

Operating the Miniterm on the RS-232 channel requires setting a board address (Address Zero not valid) on DIP Switch S1. Refer to page 24, Network Address Settings for specific information.

Miniterm to Host Computer/Modem Connection

Figure 18 shows a direct Miniterm-to-host computer connection.

Figure 19 shows a Miniterm-to-host computer connection through a modem.

NOTE: Set switch position 7 of Dip Switch S1 on the Miniterm to OFF when using a modem. Refer to page 26, for specific instructions on setting the S1 DIP switch.

1) Connect the **Transmit** pin of the RS-232 device to COMM terminal strip pin number 5 (labeled **RxD**) (see Figure 28).

2) Connect the **Receive** pin of the RS-232 device to COMM terminal strip pin number 4 (labeled **TxD**).

3) Connect the **Ground** pin of the RS-232 device to COMM terminal strip pin number 6 (labeled **GND**).

4) Connect the RS-232 cabling drain wire/shield to GROUND at the host computer/modem end of the cable. ***Do Not*** connect the drain wire at the Miniterm end of the cable.

Table 16 lists the connections between the COMM terminal strip and a host computer.

Table 16 - Connection Table for Host Computer

Signal	Miniterm COMM Pin #	Host Computer DB9-S pin	Host Computer DB25-S pin
TXD	4	2	3
RXD	5	3	2
GND	6	5	7

Table 17 lists the connections between the Miniterm COMM terminal strip and a modem.

Table 17 - Connection Table for Modem

Signal	Miniterm COMM Pin #	Modem DB25-P
TXD	4	2
RXD	5	3
GND	6	7

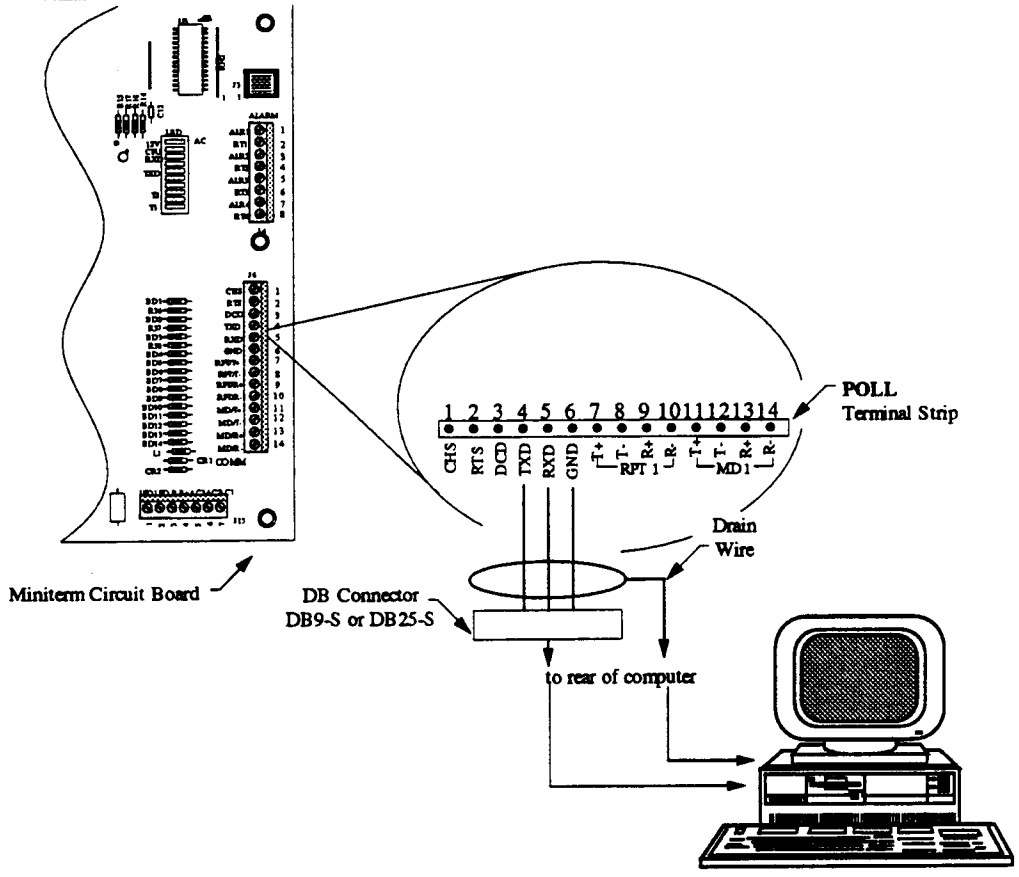


Figure 18 - Miniterm-to-Host Computer Connection

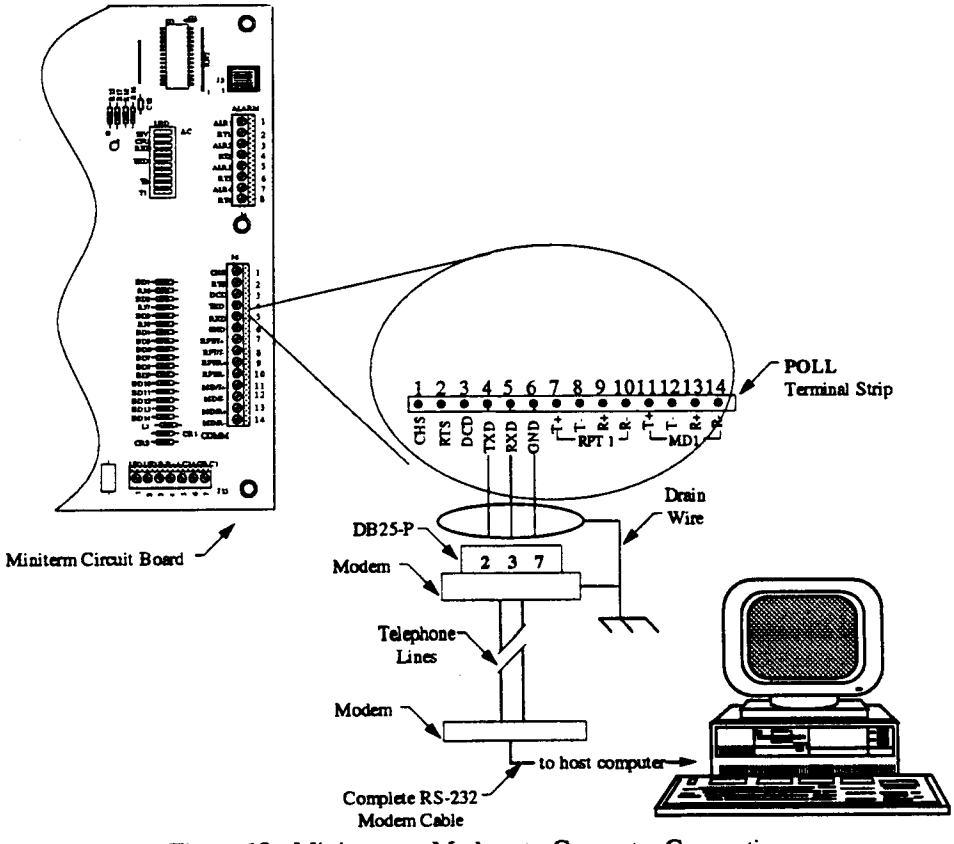


Figure 19 - Miniterm-to-Modem-to-Computer Connection

Networking

The Miniterm can be networked with a maximum of 62 other Miniterm units or other Continental Instruments access control devices (Superterm, Smarterm, and Microterm).

Note: Multidrop networks require line drivers if more than 10 devices are configured.

The following network configurations are possible:

RS-232 to RS-422 Networks
RS-232 to RS-422 REPEAT Networks
RS-232 to RS-422 MULTIDROP Network

RS-422 to RS-422 Networks
RS-422 to RS-422 REPEAT Network
RS-422 to RS-422 MULTIDROP Network

NOTES: If the first Miniterm in the network is *less than* 50 feet (15.2m) from the host computer, the first Miniterm in the network may be used to convert the RS-232 polling signal to RS-422 for the remainder of the network.

If the first Miniterm in the network is *more than* 50 feet (15.2m) from the host computer, an RS-422 polling line converter is required (CICE1941).

Network Jumper Settings

The MODE 1 and EOL 1 jumpers on each Miniterm must be set depending on the type of network configuration.

Refer to page 35 for specific information regarding the EOL 1 jumper.

Refer to page 36 for specific information regarding the MODE 1 jumper.

Network Cable Requirements

Networking multiple Miniterms requires 4-conductor cable (2-two wire twisted pair), stranded, 22AWG, with shielding, and drain wire.

For REPEAT network configurations, cable length between **EACH** Miniterm is restricted to a maximum length of 4000 feet (1220m).

For MULTIDROP network configurations, total cable length is restricted to a maximum 4000 feet (1220m) between the **FIRST** Miniterm and the **LAST** Miniterm in the network.

Network Address Settings

Operating the Miniterm with a host computer, or in a network, requires that each Miniterm (and other devices) have an individual, unique address other than zero. Address 0 clears all programmed data when the RESET button, S1, is pressed and held for approximately two seconds.

An 8-position DIP switch labeled S2 mounted on the Miniterm Circuit Board determines each Miniterm's address (see Figure 20).

Table 18 lists 63 Miniterm address switch positions.

NOTES: Address switch (S2) position 8 is not used. Set the switch to the ON position.

Note: Addresses shown for example purposes only

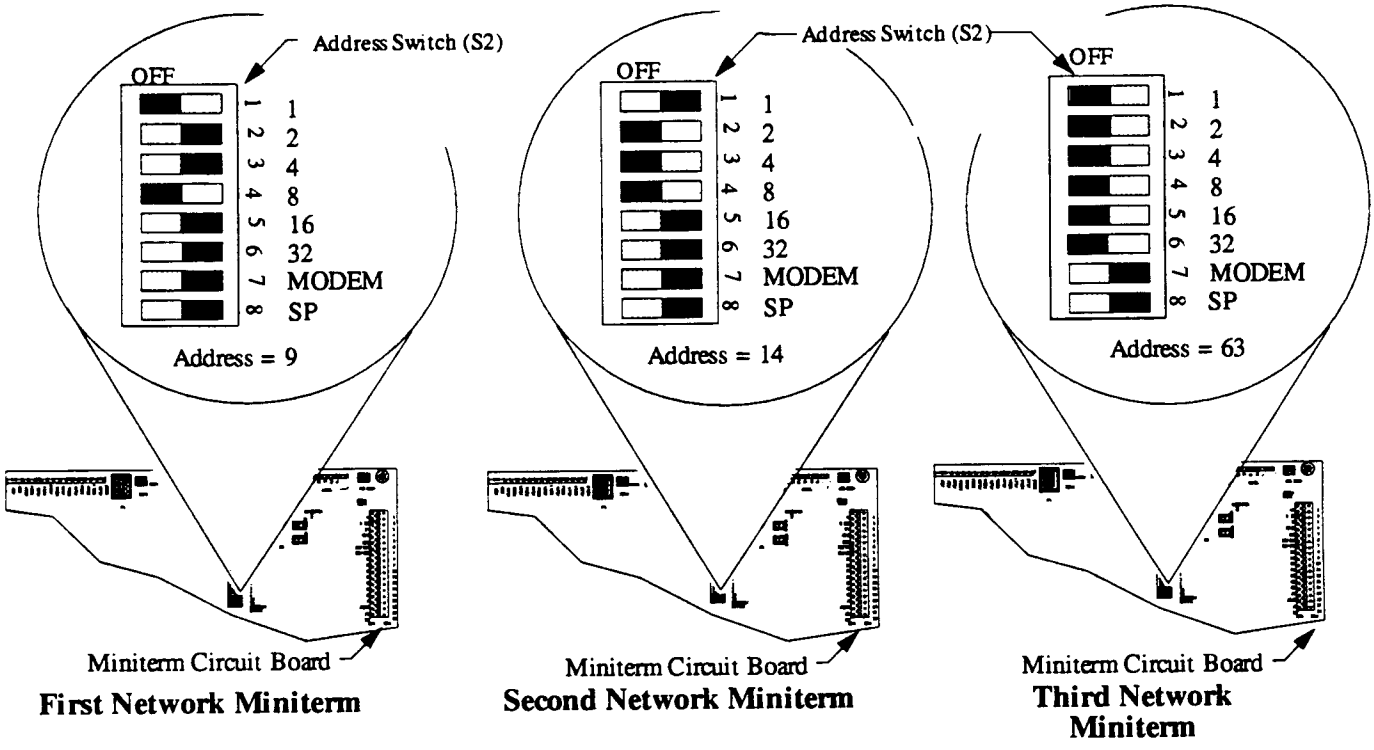


Figure 20 - Miniterm Address Switch (S2) Location

Table 18 - Miniterm Address Switch (S2) Positions

Miniterm Number	Address Switch Position Number					
	1	2	3	4	5	6
1	OFF	ON	ON	ON	ON	ON
2	ON	OFF	ON	ON	ON	ON
3	OFF	OFF	ON	ON	ON	ON
4	ON	ON	OFF	ON	ON	ON
5	OFF	ON	OFF	ON	ON	ON
6	ON	OFF	OFF	ON	ON	ON
7	OFF	OFF	OFF	ON	ON	ON
8	ON	ON	ON	OFF	ON	ON
9	OFF	ON	ON	OFF	ON	ON
10	ON	OFF	ON	OFF	ON	ON
11	OFF	OFF	ON	OFF	ON	ON
12	ON	ON	OFF	OFF	ON	ON
13	OFF	ON	OFF	OFF	ON	ON
14	ON	OFF	OFF	OFF	ON	ON
15	OFF	OFF	OFF	OFF	ON	ON
16	ON	ON	ON	ON	OFF	ON
17	OFF	ON	ON	ON	OFF	ON
18	ON	OFF	ON	ON	OFF	ON
19	OFF	OFF	ON	ON	OFF	ON
20	ON	ON	OFF	ON	OFF	ON
21	OFF	ON	OFF	ON	OFF	ON
22	ON	OFF	OFF	ON	OFF	ON
23	OFF	OFF	OFF	ON	OFF	ON
24	ON	ON	ON	OFF	OFF	ON
25	OFF	ON	ON	OFF	OFF	ON
26	ON	OFF	ON	OFF	OFF	ON
27	OFF	OFF	ON	OFF	OFF	ON
28	ON	ON	OFF	OFF	OFF	ON
29	OFF	ON	OFF	OFF	OFF	ON
30	ON	OFF	OFF	OFF	OFF	ON
31	OFF	OFF	OFF	OFF	OFF	ON
32	ON	ON	ON	ON	ON	OFF
33	OFF	ON	ON	ON	ON	OFF
34	ON	OFF	ON	ON	ON	OFF
35	OFF	OFF	ON	ON	ON	OFF
36	ON	ON	OFF	ON	ON	OFF
37	OFF	ON	OFF	ON	ON	OFF
38	ON	OFF	OFF	ON	ON	OFF
39	OFF	OFF	OFF	ON	ON	OFF
40	ON	ON	ON	OFF	ON	OFF
41	OFF	ON	ON	OFF	ON	OFF
42	ON	OFF	ON	OFF	ON	OFF
43	OFF	OFF	ON	OFF	ON	OFF
44	ON	ON	OFF	OFF	ON	OFF
45	OFF	ON	OFF	OFF	ON	OFF
46	ON	OFF	OFF	OFF	ON	OFF
47	OFF	OFF	OFF	OFF	ON	OFF
48	ON	ON	ON	ON	OFF	OFF
49	OFF	ON	ON	ON	OFF	OFF
50	ON	OFF	ON	ON	OFF	OFF
51	OFF	OFF	ON	ON	OFF	OFF
52	ON	ON	OFF	ON	OFF	OFF
53	OFF	ON	OFF	ON	OFF	OFF
54	ON	OFF	OFF	ON	OFF	OFF
55	OFF	OFF	OFF	ON	OFF	OFF
56	ON	ON	ON	OFF	OFF	OFF
57	OFF	ON	ON	OFF	OFF	OFF
58	ON	OFF	ON	OFF	OFF	OFF
59	OFF	OFF	ON	OFF	OFF	OFF
60	ON	ON	OFF	OFF	OFF	OFF
61	OFF	ON	OFF	OFF	OFF	OFF
62	ON	OFF	OFF	OFF	OFF	OFF
63	OFF	OFF	OFF	OFF	OFF	OFF

RS-232 to RS-422 REPEAT Network

If the first Miniterm in the network is less than 50 feet (15.2m) from the host computer, it may be used to convert the RS-232 polling signal from the host to RS-422 for the remainder of the network.

- Connect the first Miniterm to the RS-232 port of the host computer.
- Connect the remainder of the network using the Miniterm's RS-422 ports.

Refer to Figure 21, page 28, for a typical REPEAT mode network connection diagram.

Table 19 lists the required connections for an RS-232 to RS-422 REPEAT network.

RS-232 to RS-422 REPEAT Jumper Settings

To convert an RS-232 signal to an RS-422 signal, the first Miniterm unit in the network must be in REPEAT mode.

Operating a Miniterm network in the REPEAT mode requires setting the MODE1 and EOL1 jumpers.

Refer to page 36 for information regarding setting the MODE1 jumper.

Refer to page 35 for information regarding setting the EOL1 jumper.

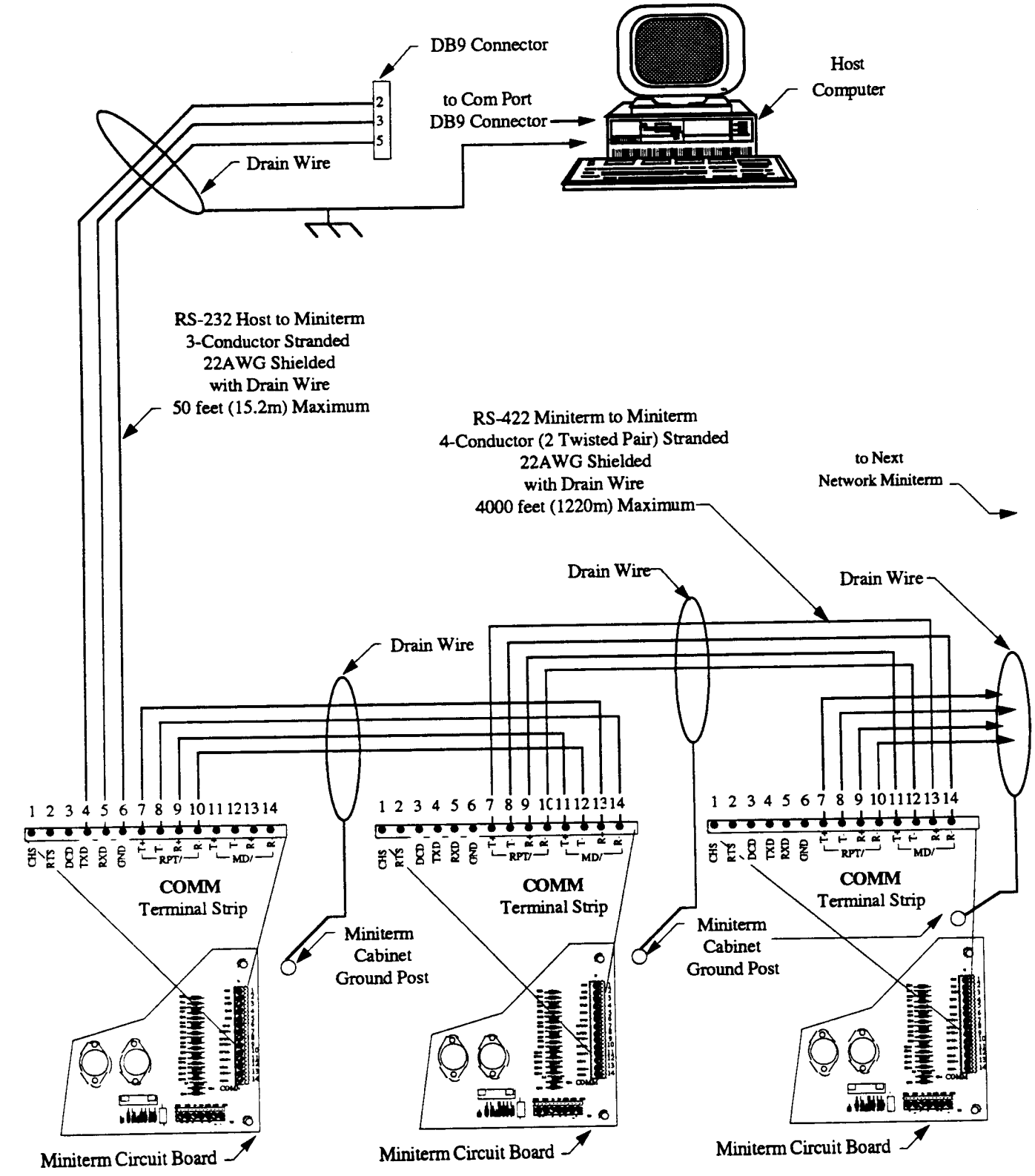
RS-232 to RS-422 REPEAT Ground and Drain Cables

The drain wires for all RS-422 cables in the network must be grounded to the individual Miniterm's Cabinet Ground Post (see Figure 21). Ground RS-422 cables at the end closest to the host computer.

NOTE: Ground the drain wire for the RS-232 cables at the host computer end of the cable.

Table 19 - RS-232 to RS-422 REPEAT Network Connections

Host Computer	Miniterm #1 REPEAT EOL1 Jumper = IN	Miniterm #2 REPEAT EOL1 Jumper = IN	Miniterm #3 REPEAT EOL1 Jumper = IN	Miniterm #4 REPEAT EOL1 Jumper = IN	to next Miniterm REPEAT EOL1 Jumper = IN
Signal	Connector/Pin	Connector/Pin	Connector/Pin	Connector/Pin	Connector/Pin
RS-232 RXD	COMM 4 (TXD)				
RS-232 TXD	COMM 5 (RXD)				
RS-232 GND	COMM 6 (GND)				
	COMM 7 (RPT/T+)	COMM 13 (MD/R+)			
	COMM 8 (RPT/T-)	COMM 14 (MD/R-)			
	COMM 9 (RPT/R+)	COMM 11 (MD/T+)			
	COMM10 (RPT/R-)	COMM 12 (MD/T-)			
		COMM 7 (RPT/T+)	COMM 13 (MD/R+)		
		COMM 8 (RPT/T-)	COMM 14 (MD/R-)		
		COMM 9 (RPT/R+)	COMM 11 (MD/T+)		
		COMM 10 (RPT/R-)	COMM 12 (MD/T-)		
			COMM 7 (RPT/T+)	COMM 13 (MD/R+)	>>>>
			COMM 8 (RPT/T-)	COMM 14 (MD/R-)	>>>>
			COMM 9 (RPT/R+)	COMM 11 (MD/T+)	>>>>
			COMM 10 (RPT/R-)	COMM 12 (MD/T-)	>>>>



First Network Miniterm

REPEAT Mode
MODE1 Jumper = RPT (pins 2 and 3)
EOL2 Jumper = IN (pins 2 and 3)

Second Network Miniterm

REPEAT Mode
MODE1 Jumper = RPT (pins 2 and 3)
EOL2 Jumper = IN (pins 2 and 3)

Third Network Miniterm

REPEAT Mode
MODE1 Jumper = RPT (pins 2 and 3)
EOL2 Jumper = IN (pins 2 and 3)

Figure 21 - Miniterm RS-232 to RS-422 REPEAT Network Connection

RS-232 to RS-422 MULTIDROP Network

Figure 22, page 30, shows the required connections for an RS-232 to RS-422 MULTIDROP network.

- Connect the first Miniterm to the RS-232 port of the host computer.
- Connect the remainder of the network using the Miniterm's RS-422 ports.

Note: If more than 10 Miniterms (or other devices) are installed in the Multidrop network, additional line drivers are required. A pair of line drivers (P/N CICE1940PL) is required for each additional 10 units installed in the network. The line drivers must be installed between the 9th and 10th units of each additional 10 devices.

Table 20 lists the required connections for an RS-232 to RS-422 MULTIDROP network.

RS-232 to RS-422 MULTIDROP Network Ground and Drain Wires

The drain wires for all RS-422 cables in a MULTIDROP network must be connected together (isolated from the cabinet ground) and connected to the ground post at the FIRST Miniterm in the network (the Miniterm unit CLOSEST to the host computer).

RS-232 to RS-422 MULTIDROP Network Jumper Setting

Operating a Miniterm network in the MULTIDROP mode requires setting the MODE1 and EOL1 jumpers.

Refer to page 36 for information regarding setting the MODE1 jumper.

Refer to page 35 for information regarding setting the EOL1 jumper.

Table 20 - RS-232 to RS-422 MULTIDROP Network Connections

Host Computer	Miniterm #1	Miniterm #2	Miniterm #3	Miniterm #4	Last Miniterm
	MODE1 Jumper=RPT EOL1 Jumper =IN	MODE1 Jumper=MD EOL1Jumper=OUT	MODE1 Jumper=MD EOL1Jumper=OUT	MODE1 Jumper=MD EOL1Jumper=OUT	MODE1 Jumper=MD EOL1 Jumper =IN
Signal	Connector/Pin	Connector/Pin	Connector/Pin	Connector/Pin	Connector/Pin
RS-232 RXD	COMM 4 (TXD)				
RS-232 TXD	COMM 5 (RXD)				
RS-232 GND	COMM 6 (GND)				
	COMM 7 (RPT/T+)	COMM 13 (MD/R+)	COMM 13 (MD/R+)	COMM 13 (MD/R+)	>>>>COMM 13 (MD/R+)
	COMM 8 (RPT/T-)	COMM 14 (MD/R-)	COMM 14 (MD/R-)	COMM 14 (MD/R-)	>>>>COMM 14 (MD/R-)
	COMM 9 (RPT/R+)	COMM 11 (MD/T+)	COMM 11 (MD/T+)	COMM 11 (MD/T+)	>>>>COMM 11 (MD/T+)
	COMM10 (RPT/R-)	COMM 12 (MD/T-)	COMM 12 (MD/T-)	COMM 12 (MD/T-)	>>>>COMM 12 (MD/T-)

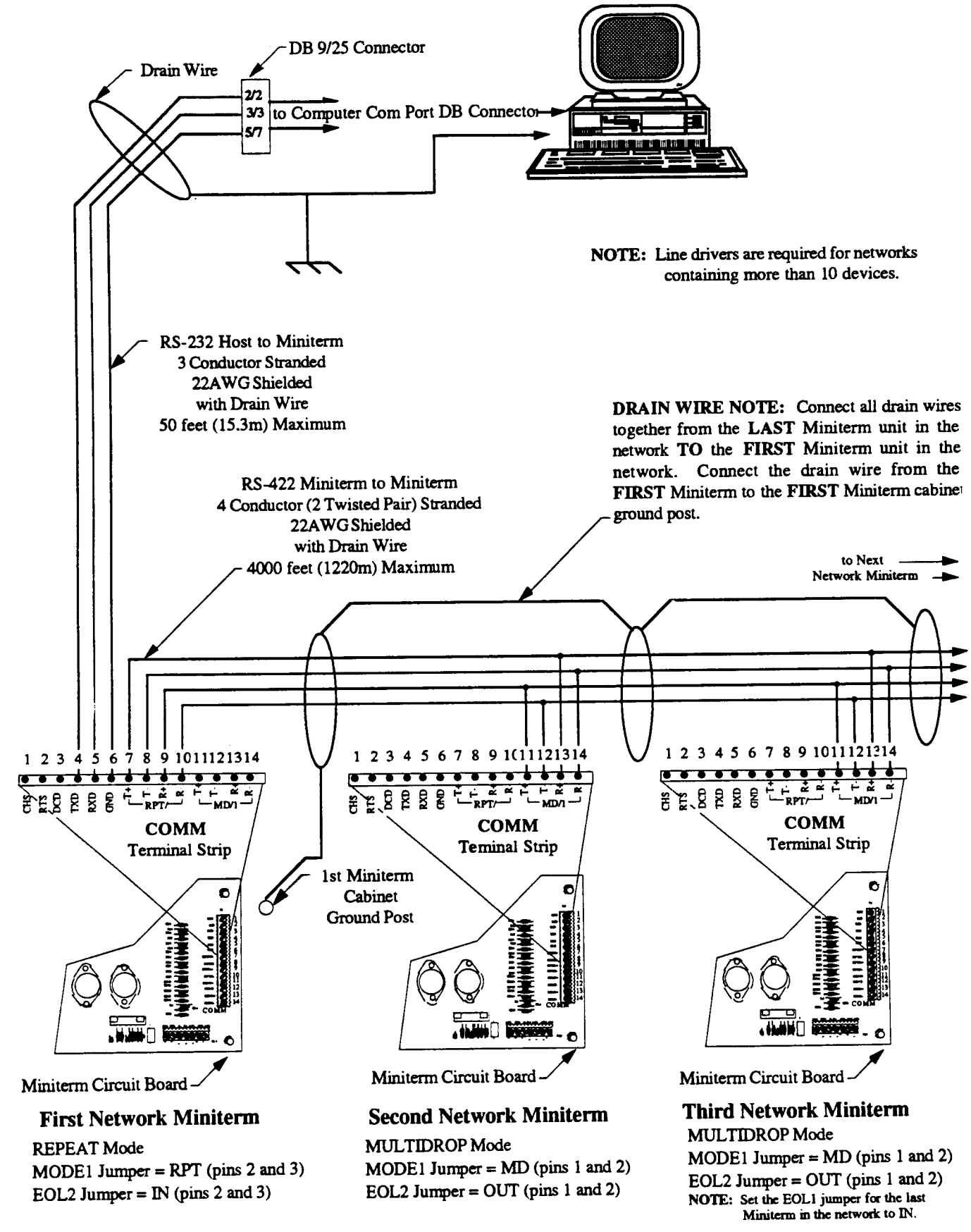


Figure 22 - Miniterm RS-232 -to- RS-422 MULTIDROP Network Connection

RS-422 to RS-422 REPEAT Network

If the first Miniterm in a network is more than 50 feet (15.2m) from the host computer, the polling line from the host computer must use RS-422 standards.

A Continental Instruments RS-422 Polling Line Converter (P/N CICE1940PL) may be used at the host computer to convert RS-232 to RS-422.

Figure 23, page 32 shows the required connections for an RS-422-to-RS-422 REPEAT network.

Table 21 lists the necessary connections between:

A host computer and the first Miniterm in the network,

and

The first Miniterm in the network and the remaining Miniterms (63 maximum) in a network.

RS-422 to RS-422 REPEAT Network Jumper Settings

Operating a Miniterm network in the REPEAT mode requires setting the MODE1 jumper and the EOL1 jumper.

Refer to page 36 for information regarding setting the MODE1 jumper.

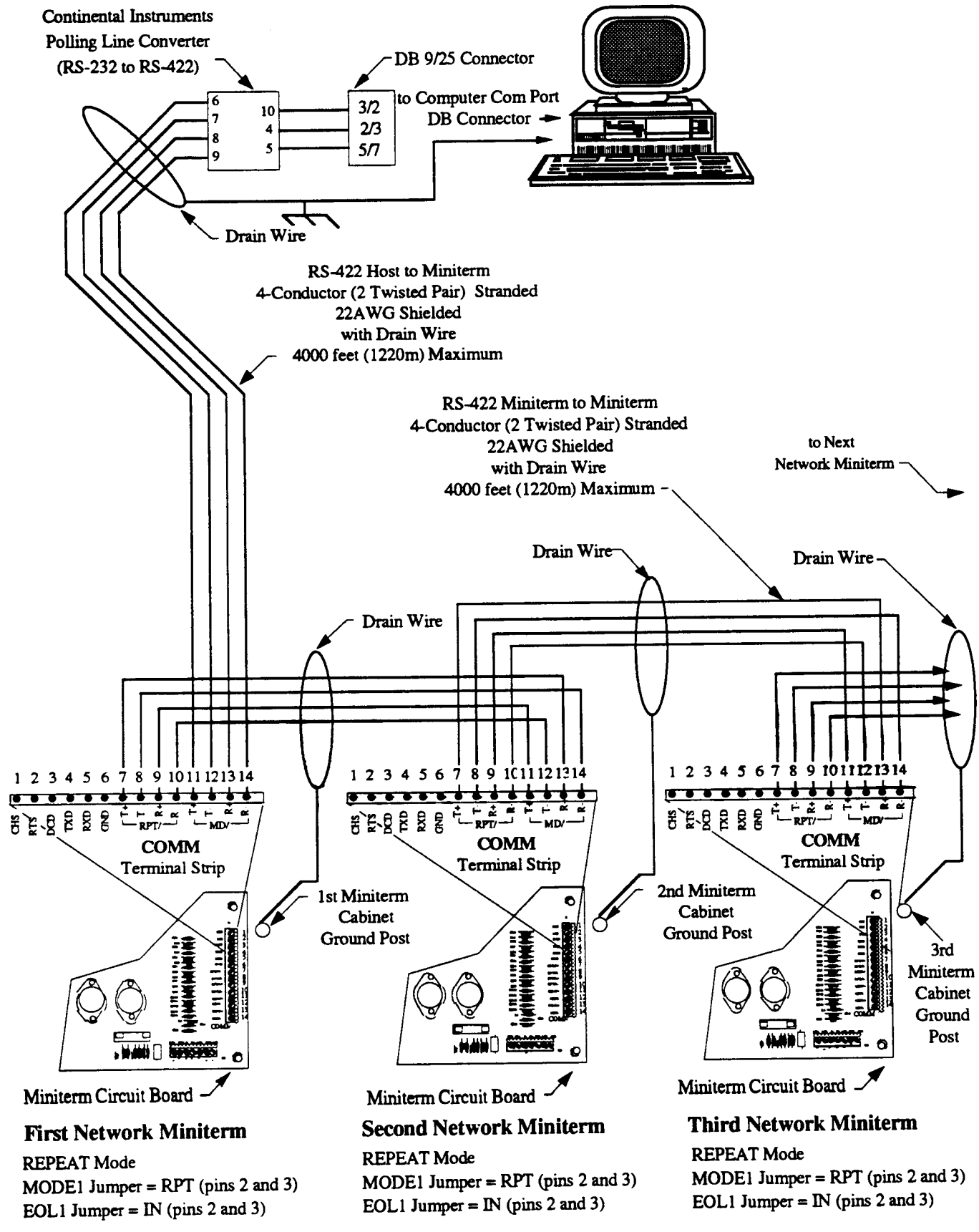
Refer to page 35 for information regarding setting the EOL1 jumper.

RS-422 to RS-422 REPEAT Network Ground and Drain Cables

Ground the drain wires for all RS-422 cables in the network at each individual Miniterm in the network.

Table 21 - RS-422 to RS-422 REPEAT Network Connections

Host Computer	Miniterm #1	Miniterm #2	Miniterm #3	Miniterm #4	To Next Miniterm
	MODE1 Jumper=RPT EOL1 Jumper =IN	MODE1 Jumper=RPT EOL1Jumper=IN	MODE1 Jumper=RPT EOL1Jumper=IN	MODE1 Jumper=RPT EOL1Jumper=IN	MODE1 Jumper=RPT EOL1 Jumper =IN
Polling Line Connector Signal	Connector/Pin	Connector/Pin	Connector/Pin	Connector/Pin	Connector/Pin
RS-422 TXD+	COMM 13 (MD/R+)				
RS-422 TXD-	COMM 14 (MD/R-)				
RS-422 RXD+	COMM 11 (MD/T+)				
RS-422 RXD-	COMM 12 (MD/T+)				
	COMM 7 (RPT/T+)	COMM 13 (MD/R+)			
	COMM 8 (RPT/T-)	COMM 14 (MD/R-)			
	COMM 9 (RPT/R+)	COMM 11 (MD/T+)			
	COMM10 (RPT/R-)	COMM 12 (MD/T-)			
		COMM 7 (RPT/T+)	COMM 13 (MD/R+)		
		COMM 8 (RPT/T-)	COMM 14 (MD/R-)		
		COMM 9 (RPT/R+)	COMM 11 (MD/T+)		
		COMM10 (RPT/R-)	COMM 12 (MD/T-)		
			COMM 7 (RPT/T+)	COMM 13 (MD/R+)	>>>>
			COMM 8 (RPT/T-)	COMM 14 (MD/R-)	>>>>
			COMM 9 (RPT/R+)	COMM 11 (MD/T+)	>>>>
			COMM10 (RPT/R-)	COMM 12 (MD/T-)	>>>>



First Network Miniterm

REPEAT Mode
MODE1 Jumper = RPT (pins 2 and 3)
EOL1 Jumper = IN (pins 2 and 3)

Second Network Miniterm

REPEAT Mode
MODE1 Jumper = RPT (pins 2 and 3)
EOL1 Jumper = IN (pins 2 and 3)

Third Network Miniterm

REPEAT Mode
MODE1 Jumper = RPT (pins 2 and 3)
EOL1 Jumper = IN (pins 2 and 3)

Figure 23 - Miniterm RS-422 to RS-422 REPEAT Network Connection

RS-422 to RS-422 MULTIDROP Network

Figure 24, page 34 shows the required connections for an RS-422-to-RS-422 MULTIDROP network.

Table 22 lists the necessary connections between:

A host computer and the first Miniterm in the network,

and

The first Miniterm in the network and the following Miniterms (63 maximum) in a network.

Note: If more than 10 Miniterms (or other devices) are installed in the Multidrop network, additional line drivers are required. A pair of line drivers (P/N CICE1940PL) is required for each additional 10 units installed in the network. The line drivers must be installed between the 9th and 10th units of each additional 10 devices.

RS-422 to RS-422 MULTIDROP Network Jumper Settings

Operating a Miniterm network in the MULTIDROP mode requires setting the MODE1 and EOL1 jumpers.

Refer to page 36 for information regarding setting the MODE1 jumper.

Refer to page 35 for information regarding setting the EOL1 jumper.

RS-422 to RS-422 MULTIDROP Network Ground and Drain Cables

Ground the drain wires for all RS-422 cables in the network to the Miniterm ground posts.

NOTE: Connect all drain wires together starting at the LAST Miniterm in the network and working toward the FIRST Miniterm in the network.

Connect the drain wire from the FIRST Miniterm in the network to the drain wire at the Polling Line Converter (see Figure 24).

Connect the drain wire from the Polling Line Converter to the ground at the rear of the host computer.

Table 22 - RS-422 to RS-422 MULTIDROP Network Connections

Polling Line Converter	Miniterm #1 REPEAT EOL1 Jumper =IN	Miniterm #2 REPEAT EOL1Jumper=IN	Miniterm #3 REPEAT EOL1Jumper=IN	Miniterm #4 REPEAT EOL1Jumper=IN		Last Miniterm REPEAT EOL1 Jumper =IN
Signal	Connector/Pin	Connector/Pin	Connector/Pin	Connector/Pin		Connector/Pin
RS-422 TXD+	COMM 13 (MD/R+)	COMM 13 (MD/R+)	COMM 13 (MD/R+)	COMM 13 (MD/R+)	>>>	COMM 13 (MD/R+)
RS-422 TXD-	COMM 14 (MD/R-)	COMM 14 (MD/R-)	COMM 14 (MD/R-)	COMM 14 (MD/R-)	>>>	COMM 14 (MD/R-)
RS-422 RXD+	COMM 11 (MD/T+)	COMM 11 (MD/T+)	COMM 11 (MD/T+)	COMM 11 (MD/T+)	>>>	COMM 11 (MD/T+)
RS-422 RXD-	COMM 12 (MD/T-)	COMM 12 (MD/T-)	COMM 12 (MD/T-)	COMM 12 (MD/T-)	>>>	COMM 12 (MD/T-)

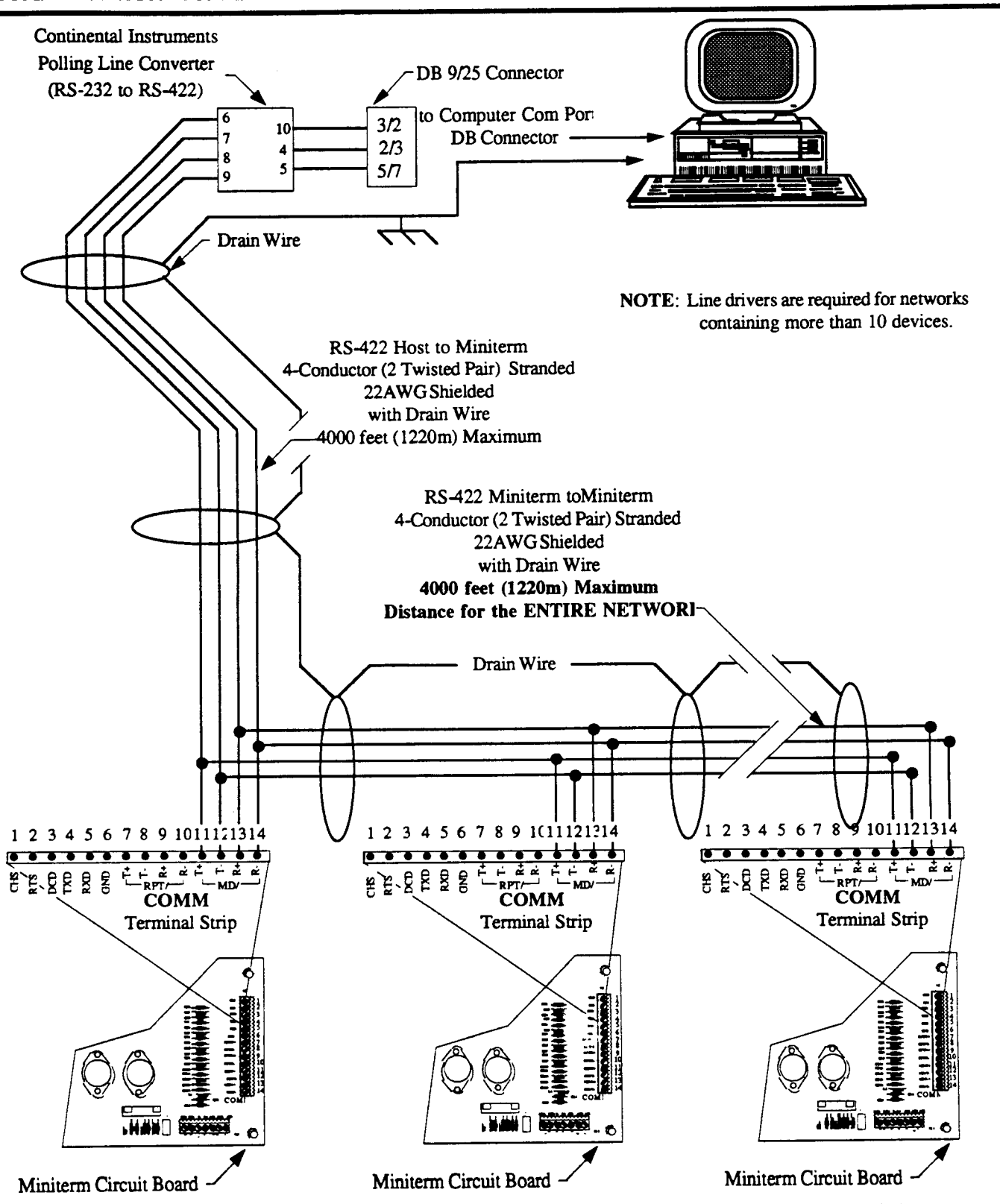


Figure 24- RS-422 to RS-422 MULTIDROP Network Connection

Jumper Settings

The Miniterm circuit board functions with a variety of options. Proper circuit operation requires setting specific jumpers depending on the installed access control accessories, the installed system options, and any network configurations.

EOL 1 Jumper

When operating multiple Miniterm units in a MULTIDROP RS-422 network, the EOL1 jumper on the LAST unit in the communication network must be set to the TERMINATED position.

When operating any Miniterm unit in a REPEATER mode (stand-alone or part of a network), set the EOL 1 jumper on EVERY unit to the TERMINATED position.

All other Miniterms should have the EOL 1 jumper set to the NOT TERMINATED position.

> ***Miniterm TERMINATED***
> Set the jumper to contact the center post (pin 2) and the upper post (pin 3) (see Figure 25, page 37).
>
> ***Miniterm NOT TERMINATED***
> Set the jumper to contact the center post (pin 2) and the lower post (pin 1).

MBAT1 Jumper

A lithium battery preserves data stored in memory for 10 months in the event of a power failure or loss of the system battery-backup. After the Miniterm System has been installed and configured, enable the memory backup battery.

NOTES: The Miniterm is shipped with the MBAT jumper in the **OUT** mode to prevent unnecessary battery drain.

DO NOT confuse the lithium battery with the back-up battery (see page 10). The lithium battery does not operate the Miniterm in the event of a power failure.

IN - Data Saved

The **IN** mode activates the lithium battery and preserves Miniterm data in the event of a power failure or loss of the system battery-backup.

- Set the jumper to contact the center post (pin 2) and the upper post (pin 3).

OUT - Data Lost

The **OUT** mode de-activates the lithium battery. No Miniterm programming or database information will be saved.

- Set the jumper to contact the center post (pin 2) and the lower post (pin 1).

MODE1 Jumper

The MODE 1 jumper is used to designate the particular Miniterm as an active REPEATER or a passive MULTIDROP network member (see Figure 25).

MULTIDROP Mode

Use this mode when the Miniterm is operating in the MULTIDROP mode as part of an RS-422 Multidrop network.

- Set the jumper to contact the center post (pin 2) and the lower post (pin 1).

REPEAT Mode

Use this mode when the Miniterm is operating in the REPEAT mode as a stand-alone system (RS-232) or a part of a REPEAT or MULTIDROP (RS-422) network.

- Set the jumper to contact the center post (pin 2) and the upper post (pin 3).

NOTE: Stand-alone Miniterms must be configured in the REPEAT mode.

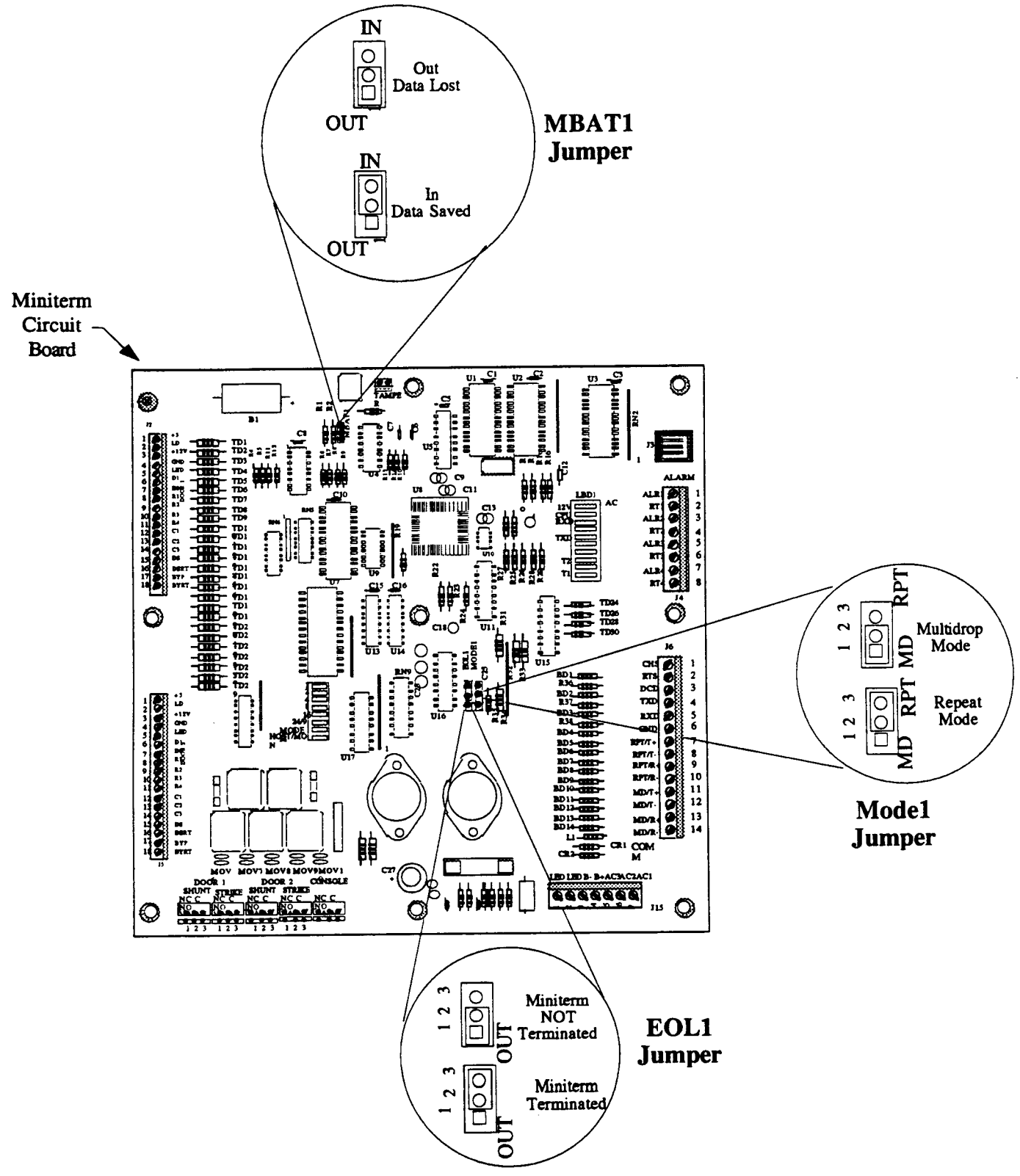


Figure 25 - Jumper Locations and Settings

TROUBLESHOOTING

LED Diagnostics

The Miniterm circuit board uses LEDs to indicate the presence of a particular voltage and RS-232 signals.

Figure 26 shows the LED position on the Miniterm circuit board and the individual LED functions.

Table 23 - LED Diagnostic Functions

LED Number	LED Indication	Notes
1	AC	AC voltage is present at the AC Power Input Terminal Block pins 5, 6, and 7
2	12VDC	+12VDC voltage is present at Dool & Door 2 Terminal Strip
3	5V	+5VDC voltage is present on the Miniterm Circuit Board for distribution to the Doorl and Door 2 terminal strips, pin 1.
4	RXD	Presence of an incoming signal from an external RS-232 device.
5	TXD	Presence of an outgoing signal from the Miniterm board to an external RS-232 device.
6	Blank	No function
7	Blank	No function
8	T2	Reserved for test function
9	Blank	No function
10	T1	Reserved for test function

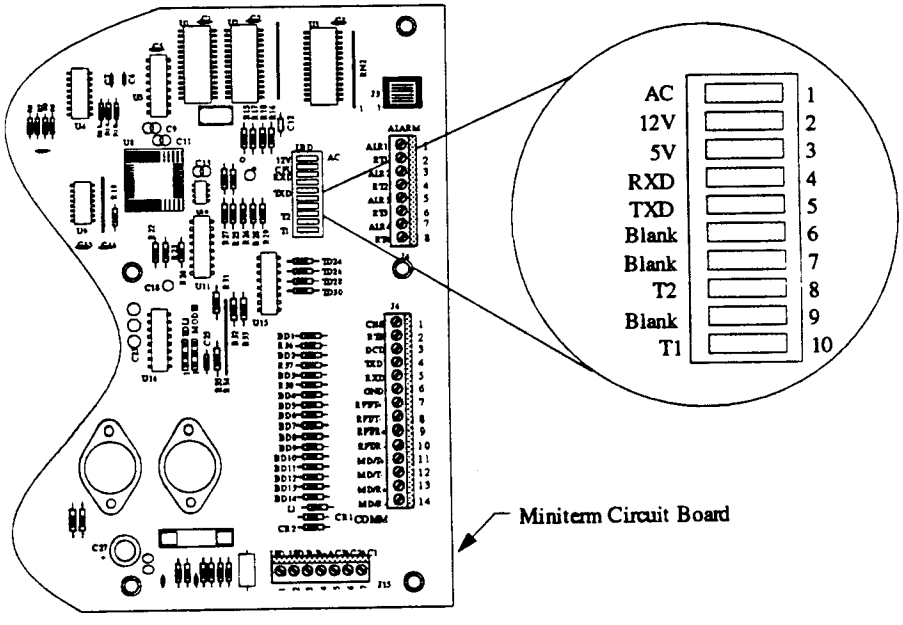


Figure 26 - Miniterm Status LED's

Miniterm Primary Fuse - 120VAC Installations (USA/Canada)

A 1/2-ampere (0.500A) slow-blow, UL approval fuse protects the Miniterm primary circuit. The fuse is located on the power transformer assembly on the bottom of the Miniterm. (see Figure 27).

WARNING
Verify that the main AC power to the Miniterm cabinet is switched OFF and locked against accidental starting.

1) Check that the line voltage selector switch is set to 110.
2) Turn OFF the main circuit breaker controlling power to the Miniterm cabinet.
3) Using a non-conducting fuse puller, remove the old fuse (see Figure 27).
4) Replace the fuse with a 0.500-Amp, 250V, slow-blow fuse.
5) Reset the the main circuit breaker.

Miniterm Primary Fuse - 120VAC Installations (European Union)

A 0.250-ampere time delay fuse meeting IEC standards protects the Miniterm primary circuit. The fuse is located on the power transformer assembly on the bottom of the Miniterm. (see Figure 27).

WARNING
Verify that the main AC power to the Miniterm cabinet is switched OFF and locked against accidental starting.

1) Check that the line voltage selector switch is set to 220.
2) Turn OFF the main circuit breaker controlling power to the Miniterm cabinet.
3) Using a non-conducting fuse puller, remove the old fuse. (see Figure 27).
4) Replace the fuse with a 0.25-Amp, 250V time delay fuse.
5) Reset the the main circuit breaker.

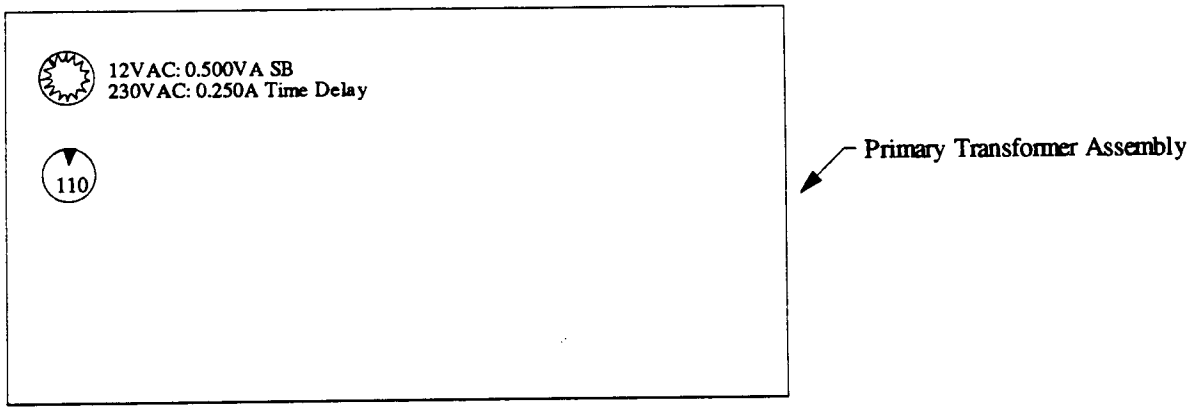


Figure 27 - Miniterm Primary Fuse

Miniterm Circuit Board Main Fuse

A 1-ampere (1A) slow-blow fuse protects the external 12V wiring from excess currents and the Miniterm from an improperly installed backup battery. The fuse is located on the lower right-hand edge of the circuit board above the POWER connector (see Figure 28).

WARNING
Verify that the main AC power to the Miniterm cabinet is switched OFF and locked against accidental starting.

1) Turn OFF the main circuit breaker controlling power to the Miniterm cabinet.
2) Using a non-conducting fuse puller, remove the old fuse (see Figure 28).
3) Replace the fuse with a 1-Amp, 250V, slow-blow fuse.
4) Reset the the main circuit breaker.

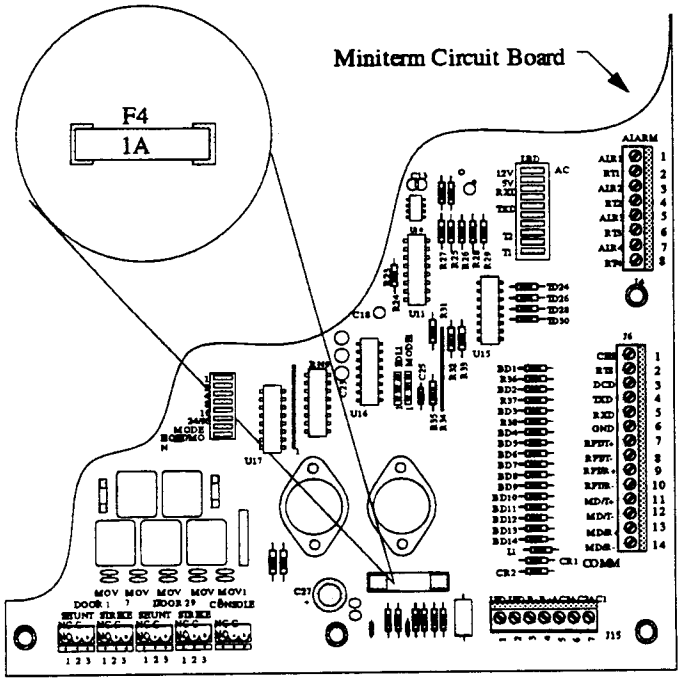


Figure 28 - Miniterm Main Fuse Location

Miniterm Door Strike Fuses

Two 3.15-ampere (3.15A) slow-blow fuses (F2 and F3) protect the door strike power circuits. These fuses are located near the relays on the Miniterm circuit board (see Figure 29).

WARNING
Verify that the main AC power to the Miniterm cabinet is switched OFF and locked against accidental starting.

1) Turn OFF the main circuit breaker controlling power to the Miniterm cabinet.
2) Locate the faulty door strike fuse (F2 or F3) (see Figure 29).
3) Using a non-conducting fuse puller, remove the old fuse.
4) Replace the fuse with a 3.15-Amp, 250V slow-blow fuse.
5) Reset the the main circuit breaker.

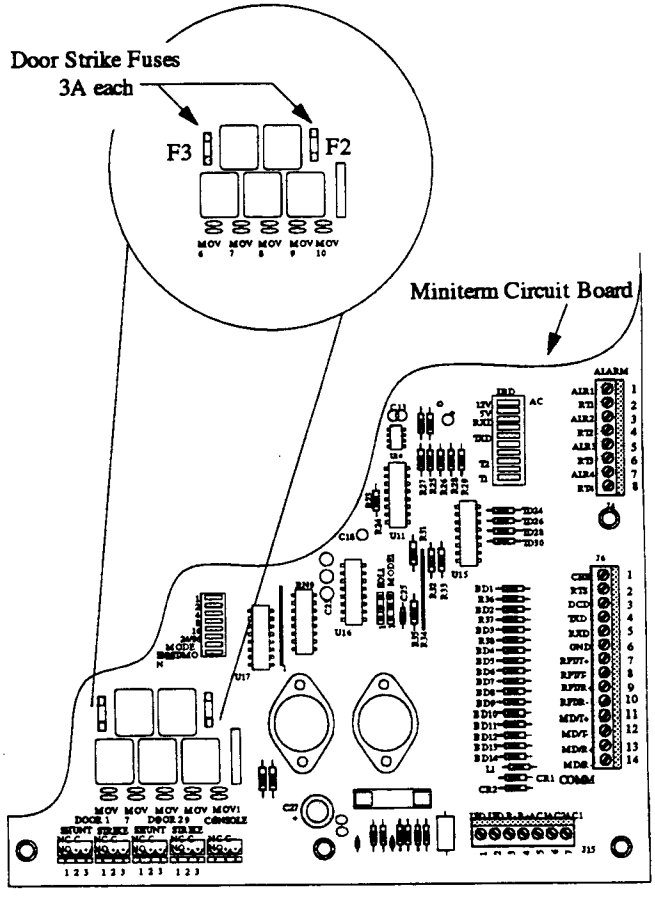


Figure 29 - Door Strike Fuse Location

Miniterm +5V Door Reader Fuse

A 0.25 amperes (0.25A) slow-blow fuse (F1) is used to limit the +5V reader current for Door 1 and Door 2. The fuse is a round plug-in type located on the left center of the Miniterm board (see Figure 30).

WARNING
Verify that the main AC power to the Miniterm cabinet is switched OFF and locked against accidental starting.

1) Turn OFF the main circuit breaker controlling power to the Miniterm cabinet.
2) Using a non-conducting fuse puller, remove the old fuse.
3) Replace the fuse with a 0.25-Amp, plug-in slow-blow fuse (TR5).
4) Reset the the main circuit breaker.

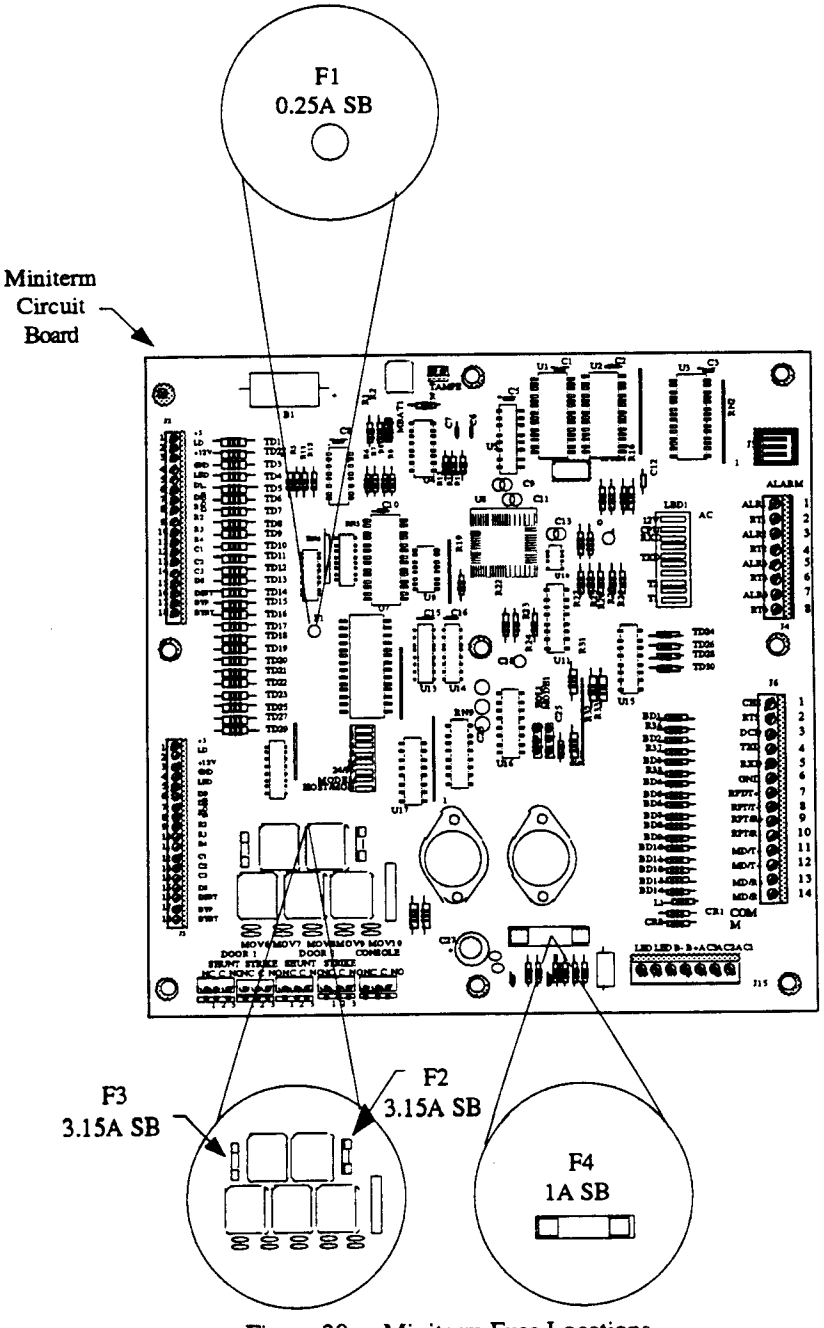


Figure 30 - Miniterm Fuse Locations

FACTORY REPAIR PROCEDURE

Factory Repair Procedure

If the Miniterm requires factory repair, follow this procedure.

1) Provide a purchase order number. (This is required before any repairs can begin).

2) Include a note with the following information:
   - Serial number of Miniterm
   - A detailed description of the problem(s) with the unit
   - State method of return shipment (UPS, Federal Express, etc.)

Use the form on the following page. DO NOT omit any information.

3) Send to:

Continental Instruments LLC
Attn: Repair Dept.
355 Bayview Avenue
Amityville, NY 11701
631-842-9400

Continental Instruments LLC
Factory Repair Form

Purchase Order No. _____

Microterm Serial No. _____

Your Name: _____

Company Name: _____

Company Address: _____

Telephone Number: _____

Detailed Description of Problem: _____

_____

_____

_____

_____

Method of Return Shipment: _____
(UPS, Federal Express, Acct. #)

Send to:

Continental Instruments LLC
Attn: Repair Dept.
355 Bayview Avenue
Amityville, NY 11701
(631) 842-9400

Miniterm Specifications		Comments
Anti-passback:		Standard
Readers:	2	Full function on or off-line
Card Capacity:	4000	Standard
Time Zones:	128	Standard
Access Modes:	4	Card Only, Unique Code Only, Card and Code, Free Access
Access Levels:	255	Standard
Holidays:	50	Standard
Link Programs:	64	Standard
Facility Codes:	10	Standard
Transaction Buffer:	500	Standard
Tamper Switch:	1	Pre-assigned
Reader Types:		Wiegand/Proximity, Magnetic Stripe
Serial Ports:	1	Host computer, printer (RS-232)
Polling Modes:	3	Dial-up (RS-232), RS-422 Multidrop and Repeat
Baud Rates:	4	1200, 2400, 4800, 9600 bps
Keypads:	2	4 x 3
Relays:	5	Form "C", contact rating of 2A (Fused) @ 28VDC
Alarms:	8	Supervised or non-supervised (Host programmable)
LED:	2	1 LED per door
Supply Voltage:		120/230 VAC
Current Draw:		0.5A @ 120VAC (maximum)
		0.25A @ 230VAC (maximum)
Battery		
Primary Backup (memory only):		10 months nominal at 25°C
Battery Backup:		Approx. 4-6 hours
Weight:		18 lbs.
Enclosure Dimensions:		15.25" H x 12.5" W x 4.0" D
Temperature Range:		
Operating:		32-115°F (0-46°C)
Storage:		32-149°F (0-65°C)
Relative Humidity:		0% to 80% non-condensing

Miniterm Specifications

Cables	AWG.	Type	Max. Length
Alarm Inputs:	22 ga.	stranded, shielded, w/drain 2-conductor alarm	1000 ft. (305m)
Readers			
Magnetic Stripe & Wiegand/Proximity:	22 ga.	stranded, shielded, w/drain 4 or 5-conductor (5-conductor for readers w/LEDs)	1000 ft. (305m) 500 t. w/ unbuffered Wiegand (152m unbuffered)
Keypad:	22 ga.	stranded, shielded w/drain 7-conductor	1000 ft. (305m)
Polling Line			
RS-422 (Network):	22 ga.	stranded, shielded, w/drain 2-twisted pair	4000 ft. (1220m)
RS-232, Dial-Up: (Host Computer)	22 ga.	stranded, shielded, w/drain 3-conductor	50 ft. (15m)
Printer:	22 ga.	stranded, shielded, w/drain 3-conductor	50 ft. (15m)

Power Ratings: As supplied from the factory, the Miniterm contains a stepdown transformer that is configured for use with a 115VAC, 230VAC power source.

Continental Instruments Corp. recommends using a dedicated, unswitched power outlet to prevent any interference from other equipment that might be connected on the same line.

Voltage	Current Maximum	Power Maximum
AC- 105-125VAC	0.5 Amperes	62.5VA
210-250VAC	0.25 Amperes	62.5VA

355 Bayview Avenue, Amityville, NY 11701
Phone: 631-842-9400 ● Fax: 631-842-9135

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