# e*M*ERGE™

### e³ SERIES™

**Essential**
**Essential Plus**
**Elite 36**
**Elite 64**

## Access Control System

## Installation Guide

# Linear®
### Building On Innovation.

# Notices

**Standards Approvals**

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 a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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**Notice**

It is important that this instruction manual be read and understood completely before installation or operation is attempted. It is intended that the installation of this unit will be performed only by persons trained and qualified in the installation of access control equipment. The important safeguards and instructions in this manual cannot cover all possible conditions and situations which may occur during installation and use. It must be understood that common sense and caution must be exercised by the person(s) installing, maintaining and operating the equipment.

# Contents

# 1.0 Introduction

This manual contains information regarding the basic installation, wiring and configuration of the *e3 Essential*, *e3 Essential Plus* and *e3 Elite* browser-based access control systems. The *e3 Essential* is enclosed in a space-efficient and durable plastic housing. The *e3 Essential Plus* and *e3 Elite* are enclosed in a heavy-duty steel cabinet and feature a self-contained battery back-up with a supervised power supply. All systems use the same control panel layout and system wiring.

## 1.1 Access Control Overview

Access control systems are designed to monitor and control access throughout a building or restricted area. An access control system involves the use of an access device (card, PIN code, etc.), which is presented at an entry device (reader/keypad) to gain access. When access is granted, a door is unlocked for a pre-programmed amount of time and a transaction is recorded in a database for reporting or tracking purposes.

## 1.2 System Overview

The *e3 Essential / Plus* is a one door, two reader access control system with immediate expansion capability to four doors, eight readers via an optional software license (P/N ES-1DL or ES-1DLB w/reader). The *e3 Elite* is capable of managing access for up to 72 doors and 144 readers without an additional software license. The *e3 Essential / Plus* and *e3 Elite* include Ethernet support, an integrated web server and Power over Ethernet (PoE) support.

| Specifications | | | |
|---|---|---|---|
| Processor | Cortex 1GHz | | |
| On-board RAM | 512MB DDR2 (333MHz) | | |
| Storage | 4 GB Micro SD | | |
| Power | Linear 12VDC/24W (2A) PIP; P/N 0-291312RU<br>Linear 12VDC/60W (5A) PIP; P/N 0-299177RU (required for UL installations) | | |
| Operating system | Embedded Linux | | |
| Transactions per second | > 30 | | |
| Plastic enclosure (W x H x D): | 12.25 in x 11.1 in x 2.23 in | | |
| Steel enclosure (W x H x D) | 17.75 in x 14.25 in x 6.5 in | | |
| Temperature specification | -4°F to 120°F (-20°C to 50°C) | | |
| **Features** | e3 Essential / Plus | e3 Elite 36 | e3 Elite 64 |
| Doors/Portals | 1 (scalable to 4 with optional key upgrades) | 36* | 64* |
| Maximum readers | 8 (4 in/4 out) | 72 (36 in / 36 out)* | 128(64in/64out)* |
| Inputs | 12 | 108* | 192* |
| Outputs | 8 | 72* | 128* |
| Card holders (users) | 1,000 | 5,000 | 5,000 |
| Access cards | 8,000 | 80,000 | 80,000 |
| Cards per person | 12 | 32 | 32 |
| Card formats | 32 | 32 | 32 |
| Access levels | 25 | 125 | 125 |
| Time Schedules | 25 | 125 | 125 |
| Simultaneous system users | 8 | 16 | 16 |
| Online transactions | 15,000 | 30,000 | 30,000 |
| Elevator | N/A | Yes* | Yes* |
| **\* NOTE**: Using optional expansion controllers | | | |

## 1.3 Installation Overview Checklist

The following list presents the steps required for successfully installing an *e3* system.

☐ Mount the enclosure

☐ Connect the readers

☐ Wire the inputs and outputs

☐ Connect power to the system

☐ Obtain IP address and other TCP/IP information from network administrator

☐ Configure the *e3's* network settings

☐ Connect the *e3* to a local area network (LAN)

☐ (Optional) Add licenses for additional doors and readers

# 2.0 Control Panel Layout

## 2.1 Control Panel Components

The following illustration shows the *e3* control panel wiring and components.
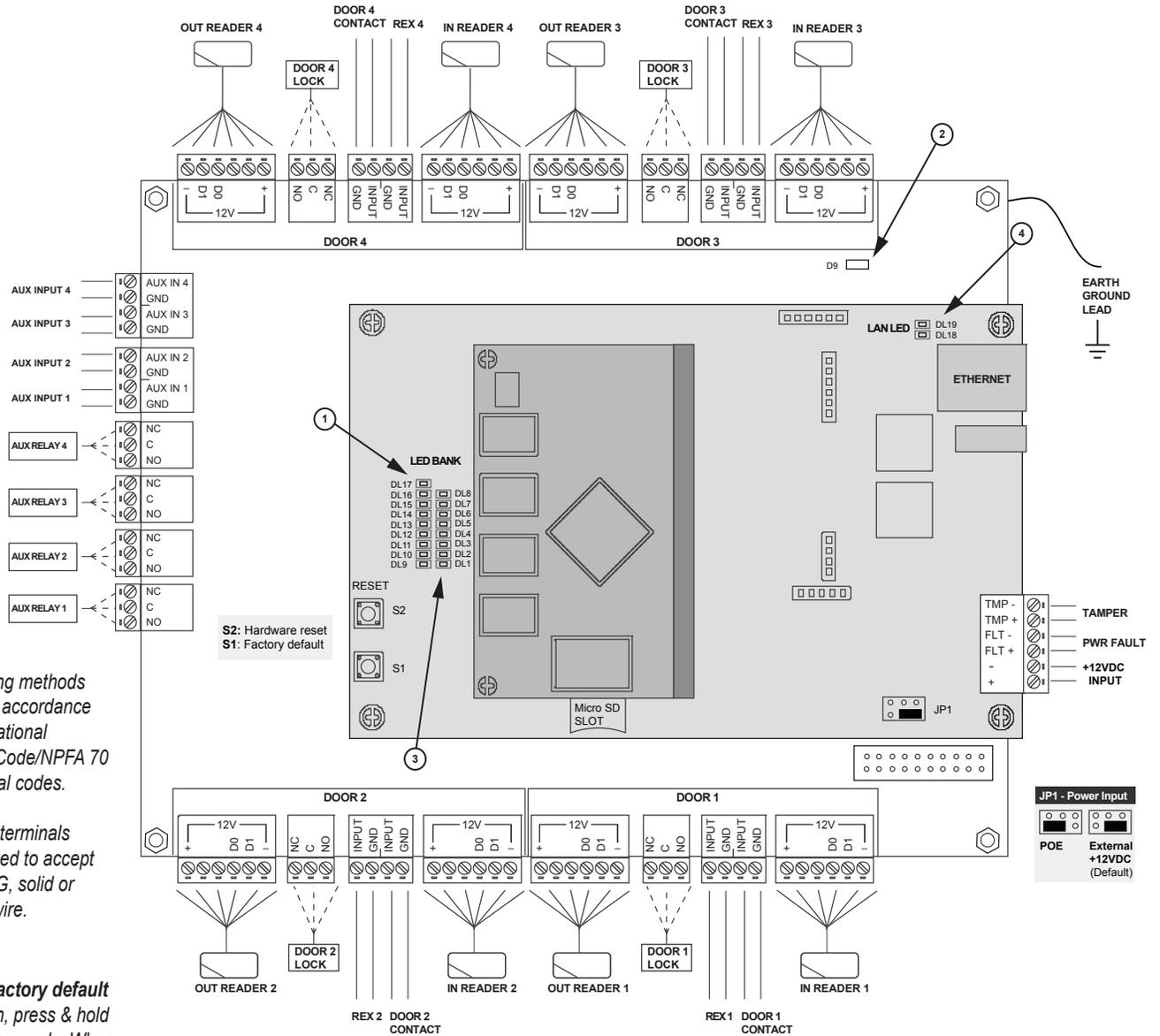


*Figure 2.1. Board Layout*

Note: Wiring methods shall be in accordance with the National Electrical Code/NPFA 70 and all local codes.

Note: The terminals are designed to accept 16-22 AWG, solid or stranded wire.

Note: To **factory default** the system, press & hold S1 for 20 seconds. When released, the system will start the factory default process. It is VERY important to wait 2-3 minutes for a solid blue LED (DL1) before programming the system. All information including license keys will need to be re-entered.

### Table 2.1: LED Indicators

| | LED | Condition |
|---|---|---|
| ① | DL17 | Red On = Power On Middle Board |
| ② | D9 | Red On = Power On Bottom Board |
| ③ | DL1 | Blue On = System is Rebooted |
| | DL1 to DL16 | Blue On = System is Booting |
| ④ | DL19, DL18 | Blue Blink = Network Connection |
| **NOTE**: System start up time is approx. 60 secs. | | |

### Table 2.2: Default I/O States

| Attribute | Default State |
|---|---|
| Door Status Inputs | Normally Open, Unsupervised, 8 Sec. Held Open Time |
| REX Inputs | Normally Open, Momentary, Unsupervised |
| Auxiliary Inputs | Normally Open, Unsupervised |
| Door Lock Outputs | Not Energized, Single Pulse, 3 Second Unlock Time |
| Aux Outputs | Not Energized, Single Pulse, 3 Seconds On |

# 3.0 Installing the Control Panel

## 3.1 Mounting the Essential Panel

The *Essential* housing is designed to accommodate the necessary wiring connections for most installations. Knock-outs are provided at the back-plate of the housing. The enclosure should be mounted vertically on a wall, in a secure location within normal temperature and humidity levels.

**Installing the Panel**

1. Run all necessary wires to the panel location.
2. Remove the enclosure's cover by removing the two screws in the front of the housing.
3. Level the enclosure on a sturdy wall. Mark the mounting holes with a pencil.
4. Partially insert screws into the top two mounting holes and hang the enclosure on the screws.
5. Pull all wires through the knock-out holes in the enclosure. Label each wire according to its use.
6. Recheck for level, insert the two lower screws, and tighten all four mounting screws.

*Note: Choose a centrally located, secure, clean and dry area near an AC power source. Avoid mounting the panel within 6 feet of any equipment that generates electrical interference.*

*Caution: This equipment includes electronic components that are highly sensitive to static electricity. Please discharge by touching an earth ground before installing or handling this equipment.*

*Note: The plastic housing will not accommodate a backup battery. If using a backup battery, a separate housing must be installed.*
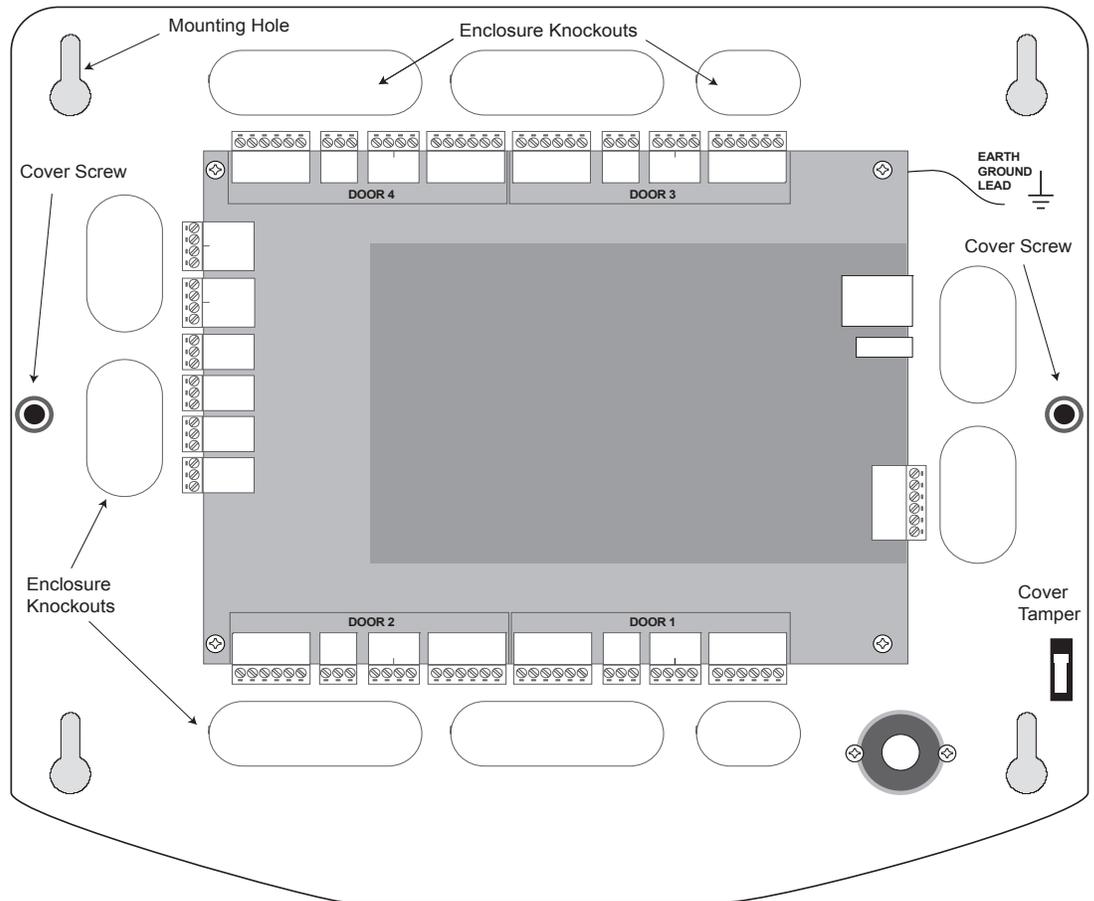


*Figure 3.1. e3 Essential Enclosure*

## Mounting Extensions

If running surface wires, 6 extension legs may be snapped onto the back of the enclosure to provide additional space behind the enclosure for the wires.
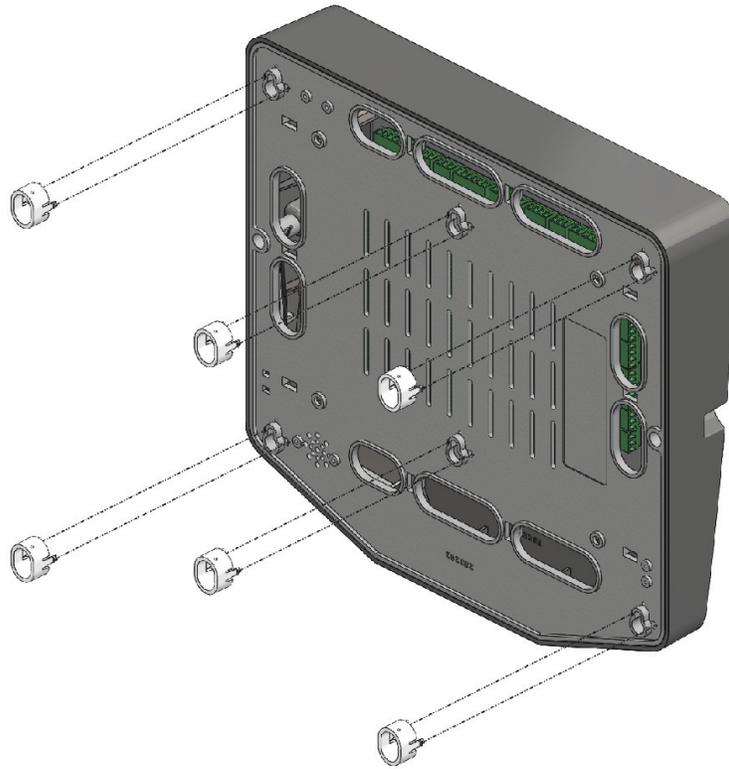
*Figure 3.2. Essential Mounting Feet / Extensions*

## 3.2 Mounting the Essential Plus and Elite

The *e3 Essential Plus* and *e3 Elite* enclosure is designed to accommodate one or two 12VDC 7Ah backup batteries and the necessary wiring connections for most installations. Conduit knock-outs are provided on all sides of the enclosure. The enclosure should be mounted vertically on a wall in a secure location within normal temperature levels. A minimum of 12 inches of space around all sides of the enclosure is recommended.

**Installing the Panel**

1. Run all necessary wires to the panel location.
2. Remove the enclosure's cover by removing the door of the housing. Unlock the door and disconnect the ground wire. The door may be lifted out of the hinge slots.
3. Remove the metal cabinet knock-outs required for wire entry.
4. Level the enclosure on a sturdy wall. Mark the mounting holes with a pencil. (The cabinet can be vertically or horizontally mounted depending on space requirements.)
5. Partially insert screws into the top two mounting holes and hang the enclosure on the screws.
6. Pull all wires through the knock-out holes in the enclosure. Label each wire according to its use.
7. Recheck for level, insert the two lower screws, and tighten all four mounting screws.
8. Install bushings as needed in cabinet knockouts to protect wires from damage.
9. Re-install the door and connect the ground wire to the door.

*Note: Choose a centrally located, secure, clean and dry area near an AC power source. Avoid mounting the panel within 6 feet of any equipment that generates electrical interference.*

***Caution**: This equipment includes electronic components that are highly sensitive to static electricity. Please discharge by touching an earth ground before installing or handling this equipment.*
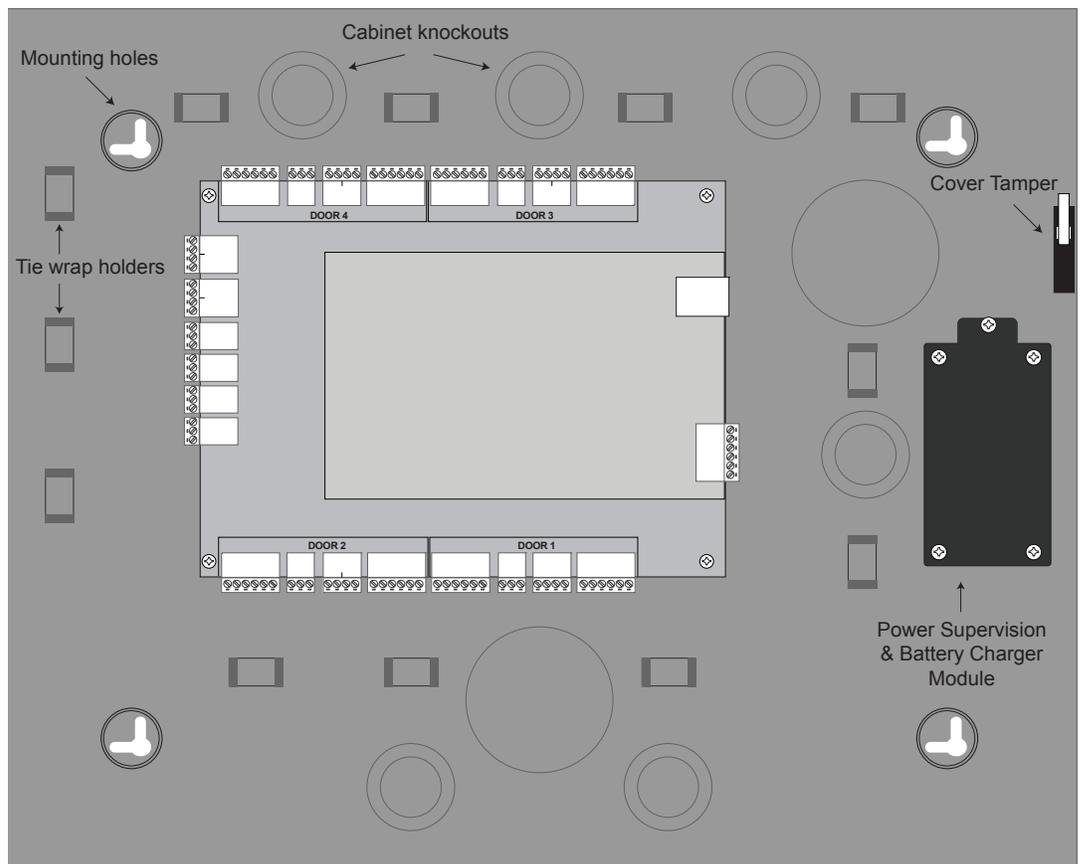


*Figure 3.3. Essential Plus and Elite Enclosure*

# 4.0 System Power

The *Essential* panel requires a 12VDC, 2A supply (not included). For UL installations, a Linear Plug in Power supply (PIP) is required (see below). The *Essential* may also be powered by a high Power over Ethernet (PoE) injector using an optional Linear PoE module.

♦ Linear 12VDC/24W (2A) PIP; P/N 0-291312RU

♦ Linear 12VDC/60W (5A) PIP; P/N 0-299177RU (required for UL installations)

♦ Linear e3 PoE module; P/N 620-100159 (requires additional high power PoE injector).

## 4.1 Essential Power Connection

**Power Supply Connection**

*Caution: A 12VDC power supply **MUST** be used. Incorrect voltage will damage the product and void the warranty.*

1. Connect the +12VDC from the power supply to the +12VDC terminal on the panel.
2. Connect the -12VDC from the power supply to the -12VDC terminal on the panel.
3. Connect an earth ground to the green earth ground lead provided in the enclosure.
4. Turn on the power supply. If using a PIP for the power supply, it must be plugged into a dedicated receptacle that is not controlled by a switch.
5. The power LEDs (DL17 and DL9) on the panel will turn on to indicate power is present..
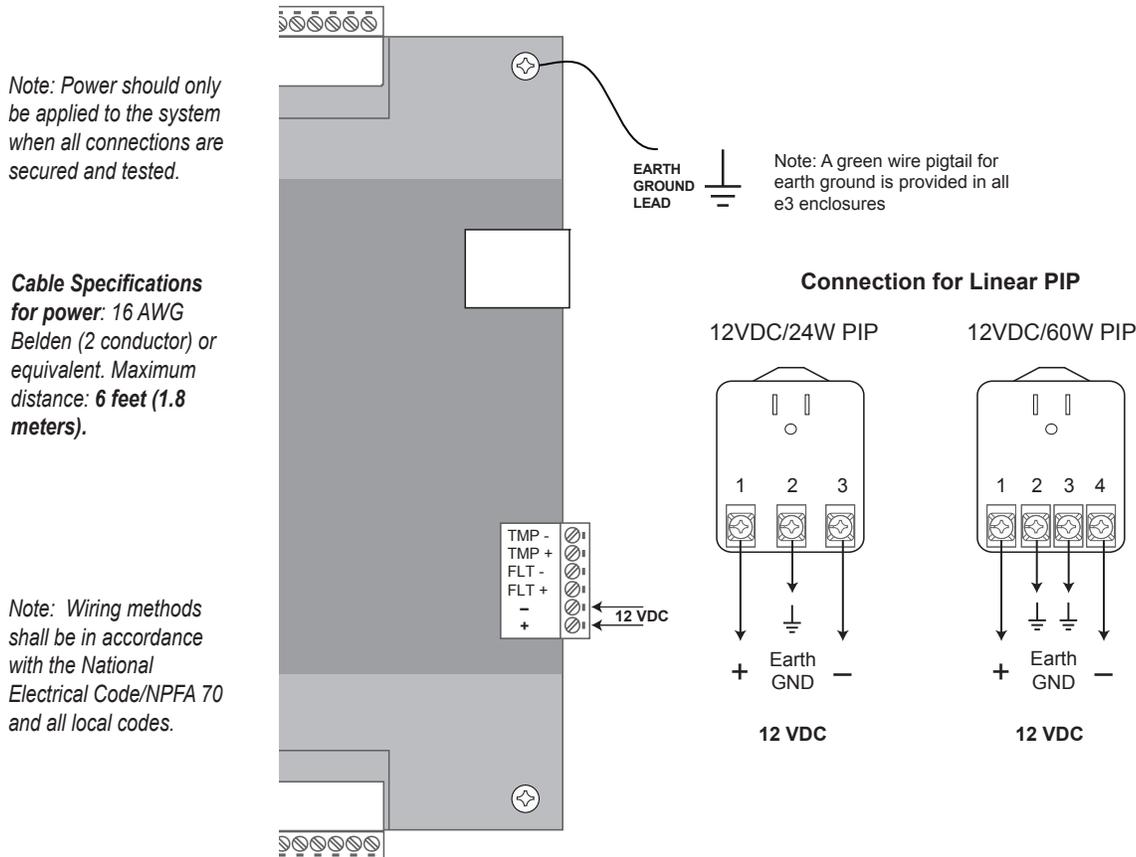
*Note: Power should only be applied to the system when all connections are secured and tested.*

*Cable Specifications for power: 16 AWG Belden (2 conductor) or equivalent. Maximum distance: **6 feet (1.8 meters).***

*Note: Wiring methods shall be in accordance with the National Electrical Code/NPFA 70 and all local codes.*

EARTH GROUND LEAD

Note: A green wire pigtail for earth ground is provided in all e3 enclosures

TMP -
TMP +
FLT -
FLT +
–
+
**12 VDC**

**Connection for Linear PIP**

12VDC/24W PIP

1  2  3

+  Earth GND  –

**12 VDC**

12VDC/60W PIP

1  2  3  4

+  Earth GND  –

**12 VDC**

*Figure 4.1. Power Connection*

**Power Fault Connection**

The controller is equipped with a power fault input that can be utilized as follows:

1. Determine whether your power fault input device uses a normally closed or normally open configuration. Please refer to instructions provided by the manufacturer.
2. Connect the power fault input device to PIN 3 and PIN 4 on the terminal strip.
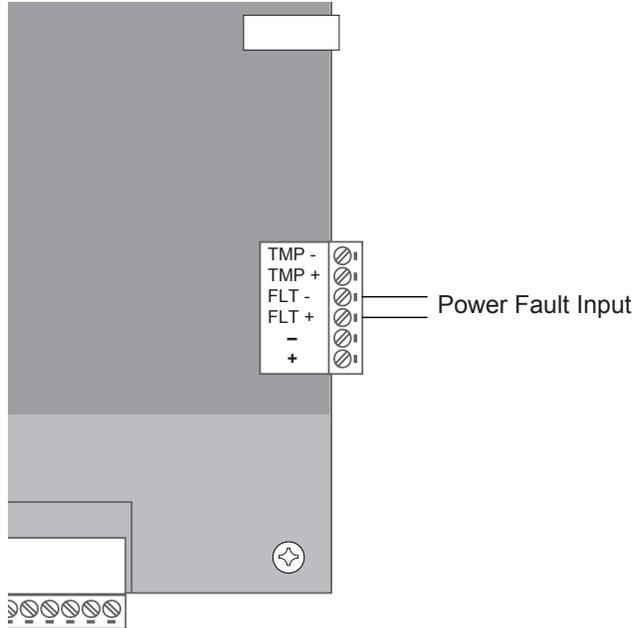3. Verify that the power fault input device is functioning properly.



TMP -
TMP +
FLT -
FLT +
—
+

Power Fault Input

*Figure 4.2. Essential Power Fault Connection*

**Tamper Protection**

A tamper switch is mounted inside the enclosure and is pre-wired to the tamper input on the terminal strip. If the *Essential* cover is removed for any reason the tamper switch will activate, triggering a condition that can be linked to an event action in programming (e.g., send an e-mail or generate an output).

# 4.2 Essential Plus and Elite Power Connection

The *Essential Plus* and *Elite* include a factory installed power supervision module as shown in Figure 4.3.

### Power Supply Connection

1. Connect the +12VDC from the power supply to the red lead on the panel.
2. Connect the -12VDC from the power supply to the black lead on the panel.
3. Connect an earth ground to the green earth ground lead provided in the enclosure.
4. Turn on the power supply. If using a PIP for the power supply, it must be plugged into a dedicated receptacle that is not controlled by a switch.
5. The power LEDs (DL17 and DL9) on the panel will turn on to indicate power is present.
6. Connect the leads to the battery (see below).

*Cable Specifications for power: 16 AWG Belden (2 conductor) or equivalent. Maximum distance: **6 feet (1.8 meters)**.*

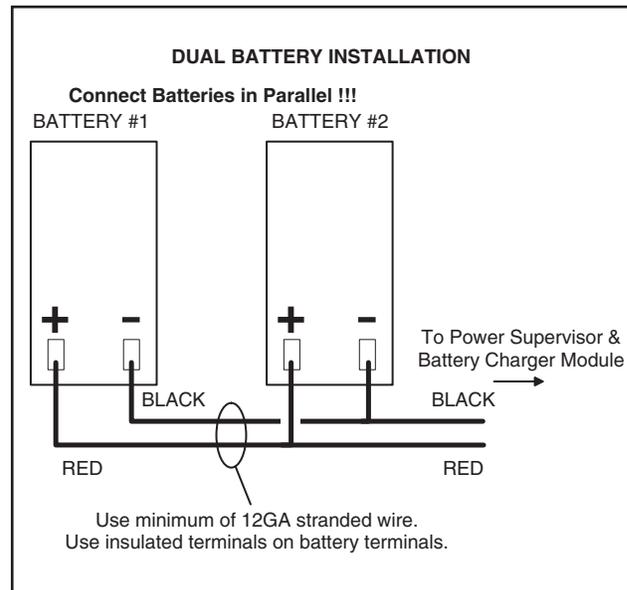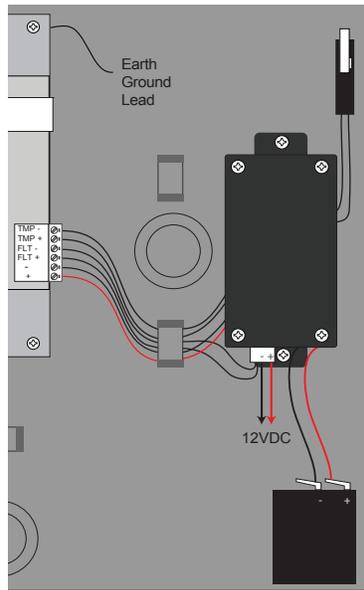*Note: Wiring methods shall be in accordance with the National Electrical Code/NPFA 70 and all local codes.*



Figure 4.3. Essential Plus and Elite Power Connection

*Note: The system will not power up using the backup battery. The 12VDC power must be present to power up the system.*

### Battery Connection

The *Essential Plus* and *Elite* provide charging and space for up to two 12VDC/7Ah sealed lead-acid batteries (not included). The battery provides standby power when the primary power source is lost. The control panel will utilize backup battery until the battery voltage reaches 11VDC at which point the entire system shuts down.

### Connecting Batteries in Parallel

Connecting batteries in parallel will double the capacity (amp hours) of the backup while maintaining the proper voltage. Parallel connected battery connection is shown in Figure 4.3.

*Note: Replace the backup battery every 2 to 3 years.*

**Note:** Parallel connected batteries will take approximately twice as long to charge as a single battery.

### Warnings:

♦ Use caution when installing batteries. Incorrect use can damage the battery, controller or can cause a fire.

♦ Connect a maximum of two identical batteries in parallel. DO NOT connect batteries in series. This will damage your system and void the warranty.

♦ Properly dispose of old batteries.

**To determine standby battery time:**

1. Determine the total standby load of the system by adding the maximum and standby current draw of the devices connected to the panel. For example, if the system consists of the control panel (200 mA) and one 75 mA reader the total standby load is 275 mA (200 mA+ 75 mA).
2. Divide the total standby load by 1000 to convert it to amps. For example, 275 / 1000 = .275.
3. Divide the amp-hour rating of the battery by the total standby load to determine the standby time for the system. For example, 7.0 / .275 = 25.5 hours standby time using a 7 AH battery with a system that consists of the control panel and one 75 mA reader.

*Note: Each e3 controller consumes 200 mA of current at 12VDC (2.4W).*

**Power Fault**

If AC power loss is detected, the power supervision module will automatically switch to the backup battery and activate the fault input. The fault input can be configured via programming to trigger an event such as e-mail or popup message. The transaction will be logged in the history of the controller.

*Note: When a power fault is detected, and the battery backup is used, the e3 may be configured to back up database and log files to the microSD card.*

**Tamper Protection**

A tamper switch is mounted inside the enclosure and is pre-wired to the tamper input on the terminal strip. If the cover is removed for any reason the tamper switch will activate, triggering a condition that can be linked to an event action in programming (e.g., send an e-mail or generate an output).

# 4.3 PoE Connection (optional)

All *e3* systems can be powered using Power over Ethernet (PoE), which is a method for providing power via Ethernet cabling. To place the controller in PoE mode, move the Power Input Jumper to the left position as illustrated in Figure 4.4.

*Note: A PoE module is required for each controller that will use the PoE option.*

A Power over Ethernet installation must use a high-power 30W PoE injector and the Linear E3-POE module. Refer to the PoE module's installation guide for specific installation information.

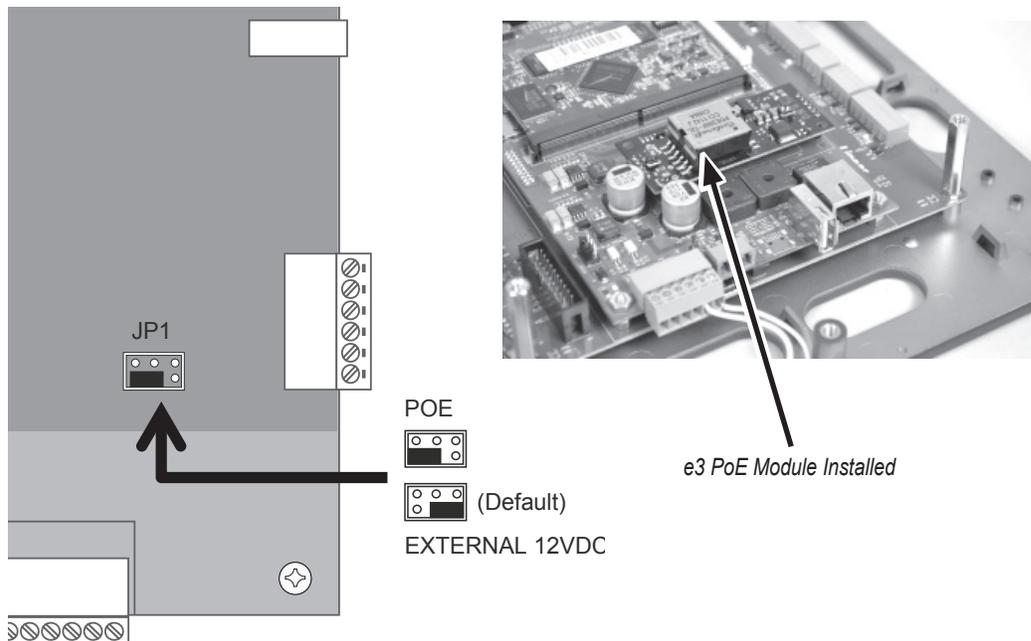*Note: Linear E3-POE module; P/N 620-100159 (requires additional high power injector) Linear 30W PoE injector: POE-PLUS*



*Figure 4.4. Power Input Jumper*

# 5.0 Inputs and Outputs

## 5.1 System Inputs

All e3 systems have the capability of monitoring door status (door contact) inputs, request to exit (REX) inputs, and auxiliary general purpose inputs.

All inputs are assigned default features that can be configured as needed. The following table shows the default states for each of the inputs:

Table 5.1: Default Input States

| Input | Default State |
|---|---|
| Door Status Inputs | Normally Open, Unsupervised, 8 Second Held Open Time |
| REX Inputs | Normally Open, Momentary, Unsupervised |
| Auxiliary Inputs | Normally Open, Unsupervised |

### Door Status Input

The door status input monitors whether the door is in an open or closed state. A door status switch (typically a magnetic reed switch) will change states when the door is opened or closed. The door status input does not require any programming to enable however, you will have to select either normally open (NO) or normally closed (NC) operation in the panel. Simply connect a magnetic reed switch to the appropriate door input as shown in the control panel illustration, Figure 2.1.

### Request To Exit

The Request to Exit (REX) input is a momentary input closure that activates the door output relay for the same amount of time as a valid card swipe or keypad entry. REX devices can include a press-to-exit switch on the inside of a door or a passive infrared detector (motion detector), which allows convenient egress. The REX input does not require any programming. Simply connect a normally open, momentary input device to the REX inputs as shown in the control panel illustration, Figure 2.1.

### Auxiliary Inputs

The auxiliary inputs are general purpose inputs that can be used with a variety of input devices including $CO_2$ detectors, alarm system integration, etc. These inputs can be configured via programming to trigger a defined action such as to activate an auxiliary output.

# 5.2 Wiring the Inputs

All inputs may be configured for normally open or normally closed contacts with supervision or non-supervision. Use standard 1k ohm resistors for supervision. Refer to Figure 5.1 for the acceptable wiring configurations.

*Cable Specifications:*
*22 AWG Belden or equivalent. Maximum distance: 2000 feet.*

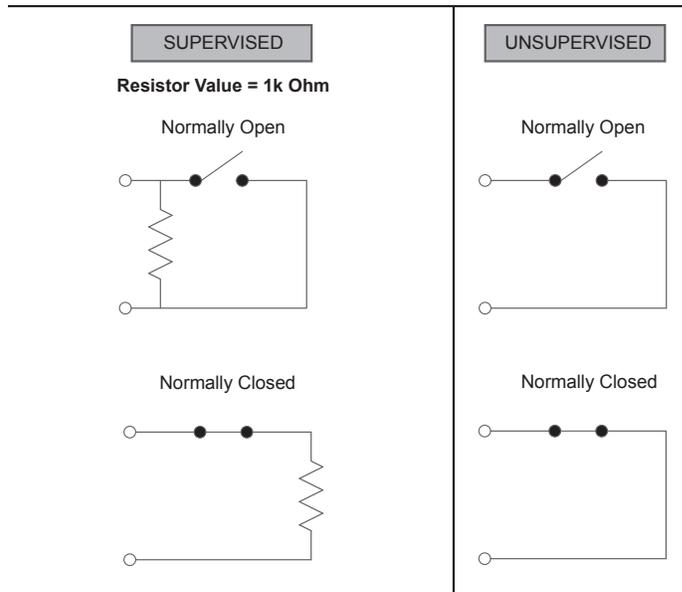*Note: Wiring methods shall be in accordance with the National Electrical Code/NPFA 70 and all local codes.*

*Figure 5.1. Input Circuit Configurations*

### Tamper Protection

A tamper switch is mounted inside the enclosure for connection to pin 5 and pin 6 on the terminal strip. If the cover is removed for any reason the tamper switch will activate, triggering a condition that can be linked to an event action in programming (e.g., send an e-mail or generate an output).
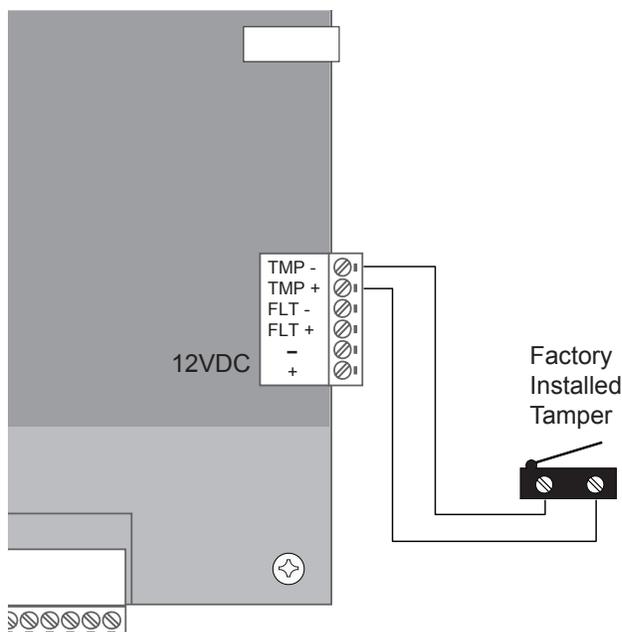
*Figure 5.2. Tamper Input Wiring*

# 5.3 System Outputs

All e3 systems have door lock relays and auxiliary output relays that may be activated in response to reader activity, time schedules or input conditions. All relays are Form-C SPDT and provide non-powered dry contacts rated for 1A. The number of available door lock relays and auxiliary output relays will depend on the number of licensed doors.

### Output Defaults

All outputs are assigned default features that can be configured as needed. The following table shows the default states for each of the outputs:

Table 5.2: Default Output States

| Output | Default State | Default Response |
|---|---|---|
| Door Lock Outputs | Not Energized, Single Pulse | 3 second unlock time in response to corresponding reader activity (Reader 1 activates door 1 lock relay) |
| Aux Outputs | Not Energized, Single Pulse | No default response. Must be configured via programming. |

### Wiring Requirements

The cable must be the proper gauge for the current load and should not be routed in parallel with other wiring especially high voltage or AC wiring. Refer to the Table 5.3 for wiring recommendations:

Table 5.3: Recommended Wiring Requirements

| Total Amps | Voltage (AC or DC) | Wiring Gauges and Distance | | | | |
|---|---|---|---|---|---|---|
| | | 14 | 16 | 18 | 20 | 22 |
| .5 A | 12V | 1500 ft | 1000 ft | 600 ft | 375 ft | 225 ft |
| | 24V | 2000 ft | 1200 ft | 750 ft | 450 ft | 300 ft |
| 1.00 A | 12V | 800 ft | 500 ft | 300 ft | 200 ft | 100 ft |
| | 24V | 1000 ft | 600 ft | 400 ft | 200 ft | 150 ft |
| 2.00 A | 12V | 400 ft | 240 ft | 150 ft | 90 ft | 60 ft |
| | 24V | 480 ft | 300 ft | 180 ft | 120 ft | 70 ft |
| 3.00 A | 12V | 260 ft | 160 ft | 100 ft | 60 ft | |
| | 24V | 320 ft | 200 ft | 120 ft | | |

# 5.4 Door Lock Outputs

The door lock outputs can be configured to operate in fail-secure or fail-safe modes.

**Wiring the Door Locks**

Connect locking devices to the door relay as shown in Figures 5.3 through 5.5. Refer to the door strike specifications to determine the appropriate voltage and configuration. **WARNING**: Do not use the control panel's power supply for the locking device.  A separate power supply must be used.

*Caution: Do not use the control panel's power supply for the locking device. **A separate power supply must be used.***

*Caution: The diode or MOV must be installed as shown in the illustrations. Failure to install these protection devices may damage the control board or erratic operation.*

*Note:  Wiring methods shall be in accordance with the National Electrical Code/NPFA 70 and all local codes.*
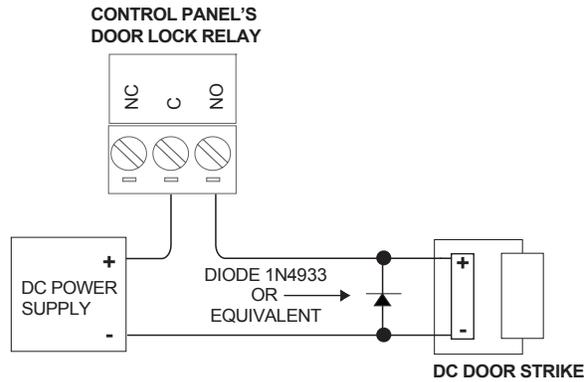


*Figure 5.3. Fail Secure **DC** Door Strike (without power, door strike is locked)*
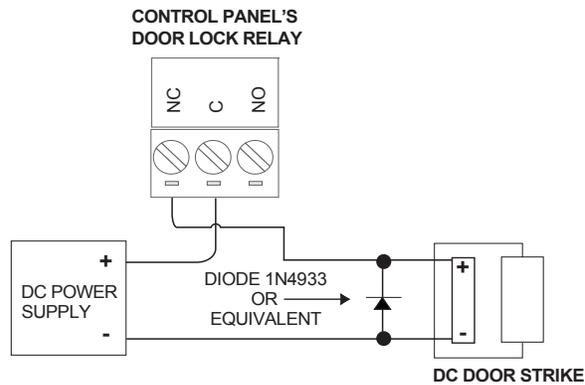


*Figure 5.4. Fail Safe **DC** Door Strike (without power, door strike is unlocked)*
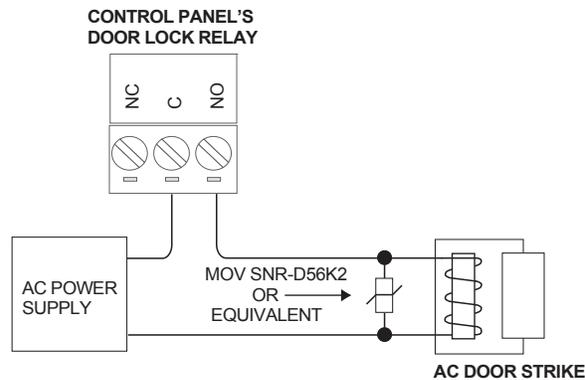


*Figure 5.5. Fail Secure **AC** Door Strike (without power, door strike is locked)*

# 6.0 Readers

## 6.1 Wiring the Readers

The control panel can accept up to 8 readers or keypads. Each reader port on the panel supports a 12VDC reader with Wiegand output format. Readers can be installed as primary (entry) readers for each door as well as optional secondary (exit) readers.

The maximum power available for individual reader is 750 mA @ 12 VDC with a combined maximum of 1.5A for the controller. Determine the reader's power consumption by referring to the documentation included with the reader. *Exceeding the maximum current for individual readers or for the controller will damage the protection fuses and void the warranty.*

**Wiring Readers**

1. Remove power from the control panel.
2. Pull the reader wiring through a knock-out in the panel's enclosure.
3. Connect the color-coded wires from the reader's wiring harness to the appropriate location of terminal strip as shown in Figure 6.1.
4. Remove excess shield to ensure that it is not exposed. An exposed shield can cause interference. Tape off any exposed shield with electrical tape.

**Caution**: Improper power wiring will damage the fuse and void the warranty.

**Cable Specifications**: Twisted, shielded 22 AWG (250 ft.) or 18 AWG (500 ft.) Belden #9535 (5 conductor) or equivalent. Please follow manufacturers installation requirements.

Note: Wiring methods shall be in accordance with the National Electrical Code/NPFA 70 and all local codes.
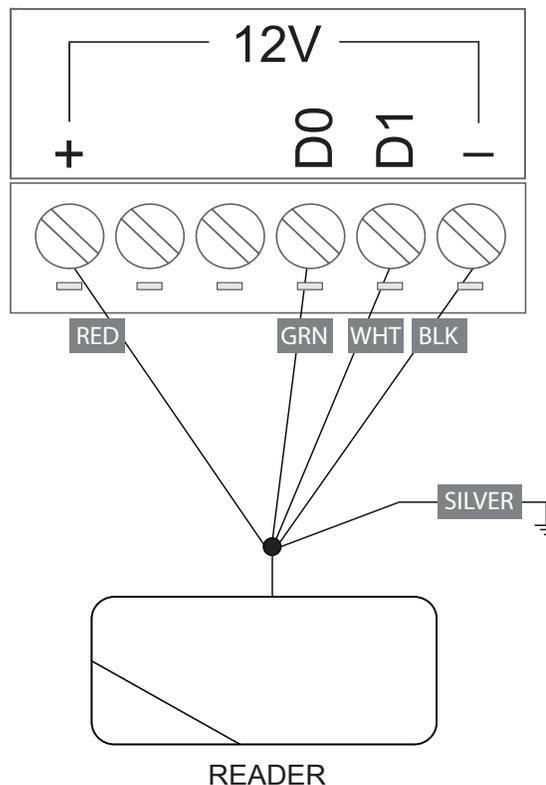
Note: A green wire pigtail for earth ground is provided in all e3 enclosures.

Figure 6.1. Reader Wiring (typical)

# 7.0 Network Connection

The *e3* controller must be located in a trusted network environment where a protected network security system (firewall, etc.) is installed and maintained. Obtain the following information from your network administrator before configuring the controller:

♦ IP address
♦ Subnet Mask
♦ Gateway
♦ DNS 1 and 2

## 7.1 Preparing for the Network

To allow for the *e3* to be recognized on the local network, it is necessary to change the controller's IP address as follows:

1. Connect your programming computer directly to the Ethernet port of the controller as shown in Figure 7.1. (You may also connect the computer and controller to an Ethernet Switch.)
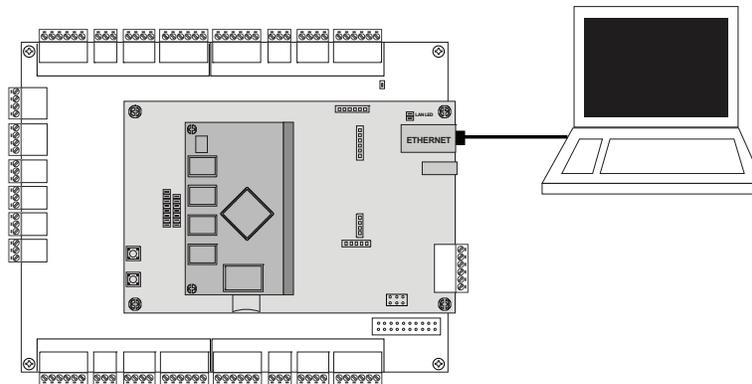


*Figure 7.1. Connecting to the Control Panel*

2. Assign a static IP address of 192.168.0.149 to the computer. (For instructions on how to change the static IP address of a Windows computer, please visit: http://technet.microsoft.com/en-us/library/ff710457).
3. After assigning the static IP address, open a web browser and enter the IP address of the controller (Default = 192.168.0.250).
4. The controller presents the e3 page as shown in Figure 7.2. To log on, enter the default user ID and password (admin/admin).



*Figure 7.2. e3 Login Page*

5. Browse to the Network Configuration (IP address) page as shown in Figure 7.3. Enter the static IP address, Subnet Mask, Gateway and DNS server so that it matches the requirements of the local network. (Refer to the User Manual for complete programming information.)
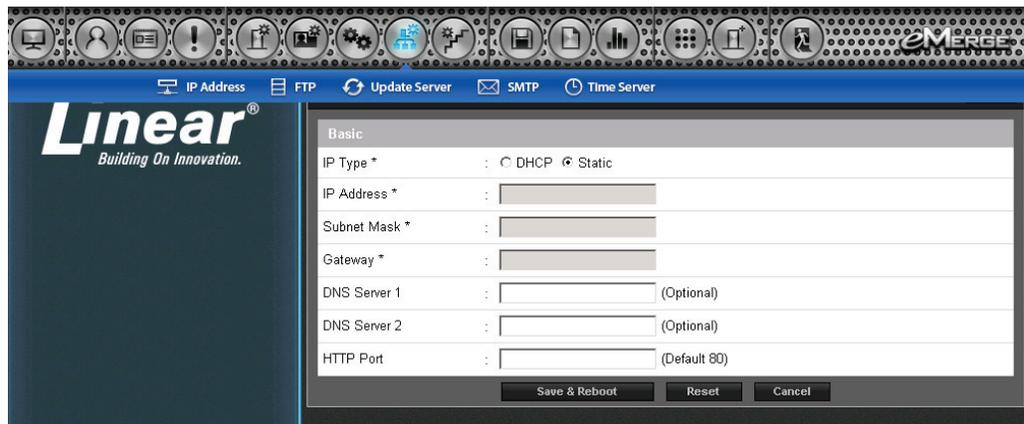


*Figure 7.3. Network Settings Page*

6. Click **Save & Reboot** and the system will reboot. (Reboot will take approximately 2 minutes.) **Note:** The system data will be lost if the controller is powered down without performing **Save & Reboot**.
7. Disconnect the programming computer from the control panel. The *e3* is now ready for the local network.

# 7.2 Connecting to the Network

1. Pull an Ethernet cable through the opening in the enclosure nearest the Ethernet port.
2. Plug the RJ-45 connector into the Ethernet port on the controller.
3. Connect to the local area network (LAN) as shown in Figure 7.4.

*Cable specification: CAT 5 or better with an RJ-45 connector wired straight through to a network hub, switch or router.*
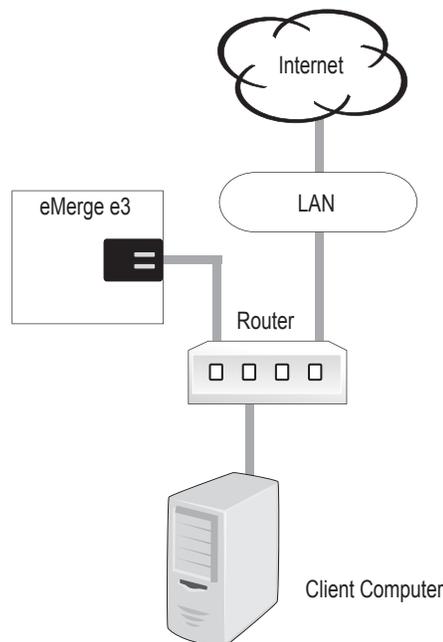


*Figure 7.4. Connecting the Essential to a LAN*

If the network connection is functioning properly, the LAN LEDs on the control panel will illuminate as shown in Figure 7.5. The local computers will then be able to access the system by entering the IP address of the controller.

Note: LAN connection is only required for monitoring, reporting and configuration. Once configured, the Essential will operate without a LAN connection.
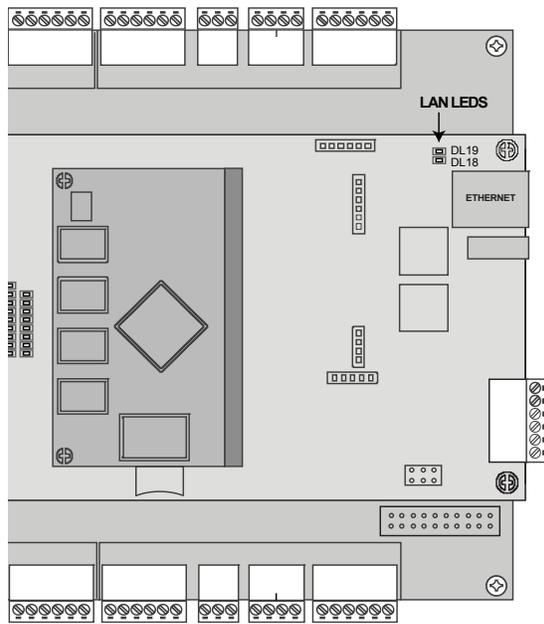
Figure 7.5. LAN LEDs

# 7.3 Adding a Client

The *e3 Elite* provides the ability to add additional controllers to expand the amount of doors, inputs and outputs. These additional controllers are referred to as clients. A client can be mounted on top of the main controller (server) or in a separate enclosure.

**Mounting a Client to a Server**

1. **Disconnect power from the controller.**
2. Remove the 4 screws securing the shield over the controller.
3. Position the expansion board over the 4 existing standoffs and fasten using the standoffs included with the new controller. *Do not over-tighten or the expansion controller could be damaged.*
4. Install the shield over the expansion board using the 4 screws removed in step 2.
5. Connect the client and server to the network and apply power. The client's power connection must be connected to the output of the power supervision module or you can use the approved PoE module. See section 4 in this manual for power connections.
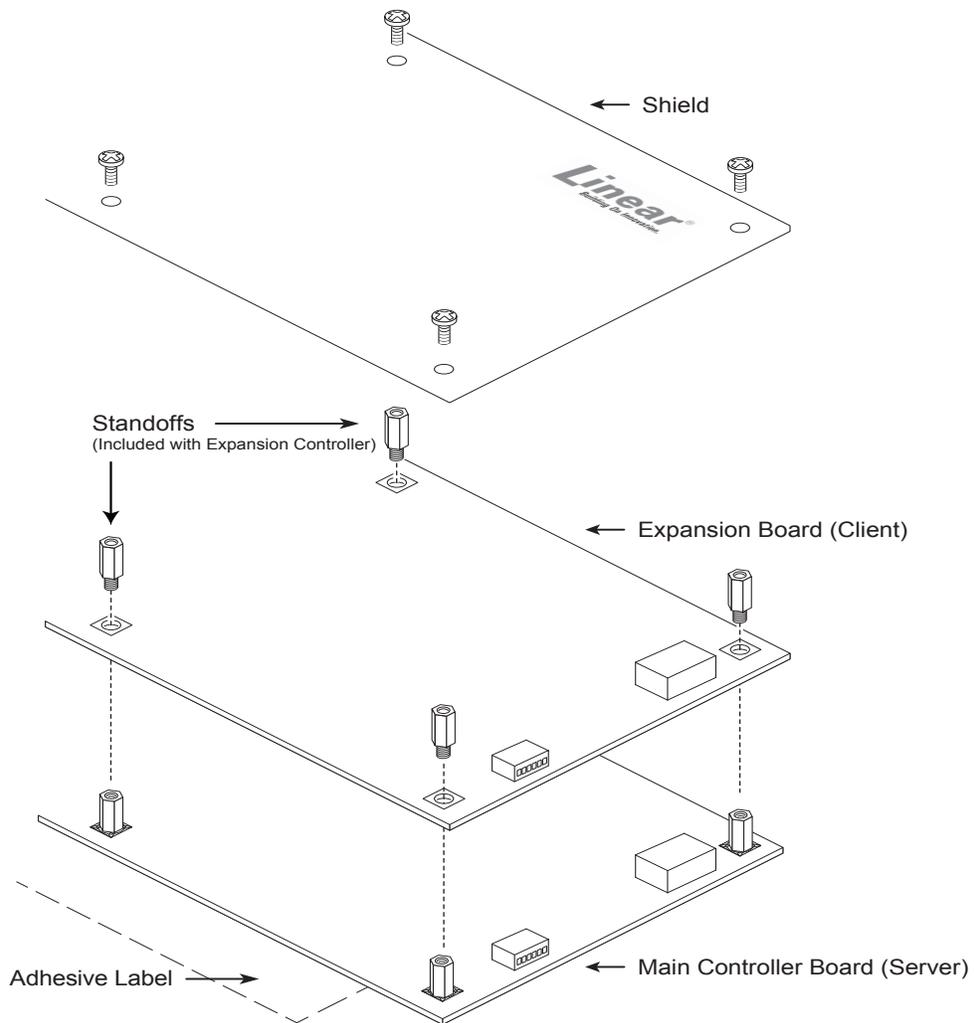


*Figure 7.6. Mounting Client to Server*

# 7.4 Configuring the Client and Server on the Network

IP Installer is a utility located on a **thumb drive** shipped with all e3 systems. The purpose of this utility is to locate the server and client on the network. It also provides a simple method of changing the IP address of the controller(s).

**Run IP Installer**

*Note: You will have to change or modify the fire wall settings the first time IP installer is run.*

1.  Connect all eMerge e3 controllers to the local network.
2.  Connect the thumb drive (included with the e3) to a Windows computer on the local network.
3.  Locate IPInstaller.exe and double-click the file.
4.  IP Installer will open. Click **Scan** to search the network for e3 controllers.
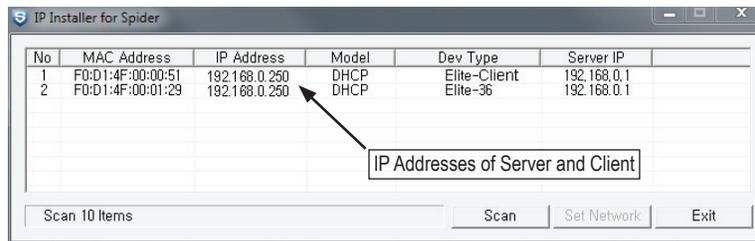5.  When controllers are identified they will be listed in IP Installer.



*Figure 7.7. IP Installer*

**Change the IP Address of Server and Client**

The default IP address of the server and client is 192.168.0.250. To avoid conflict on the network, the IP address of the client and server must be changed as follows:

*Note: Consult the appropriate on-site IT Administrator when changing the IP Address, Subnet Mask and Gateway.*

1.  Connect the server to the network.
2.  Open IPInstaller.exe and click **Scan**.
3.  Select the server from the list and click **Set Network**.
4.  Enter a new IP address for the server. This information must be provided by the IT Administrator.
5.  Change the Subnet Mask and Gateway to meet the requirements of the local network.
6.  Enter the IP Installer password (default = 4321) and click **OK**.
7.  Connect the client to the network and repeat steps 1 through 4 to change the client's IP address.

**Assign the Server to Client (Elite Only)**

After the controllers are located on the network, the client must be linked to the server as follows:

1. Using a web browser on a local computer, enter the IP address of the client as configured in IP Installer.
2. The browser presents the Linear page as shown.
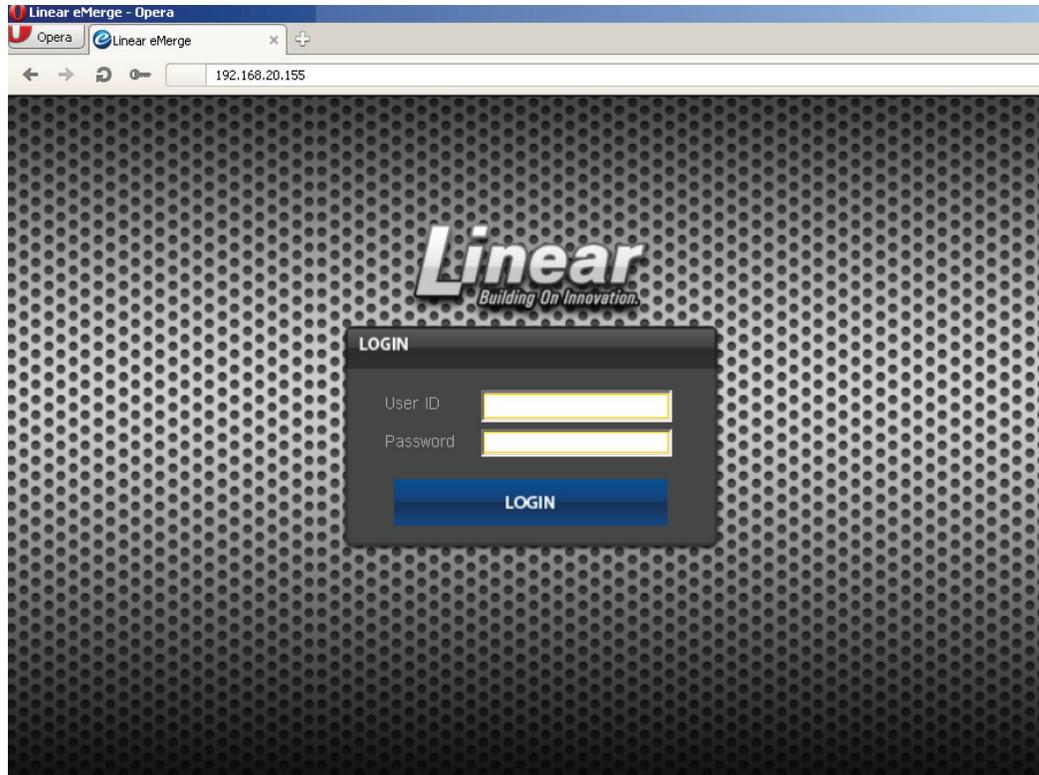


3. To log on, enter the user name (default = admin) and password (default = admin).

4. After a successful log on, the browser presents the page as shown. Click **Edit**.
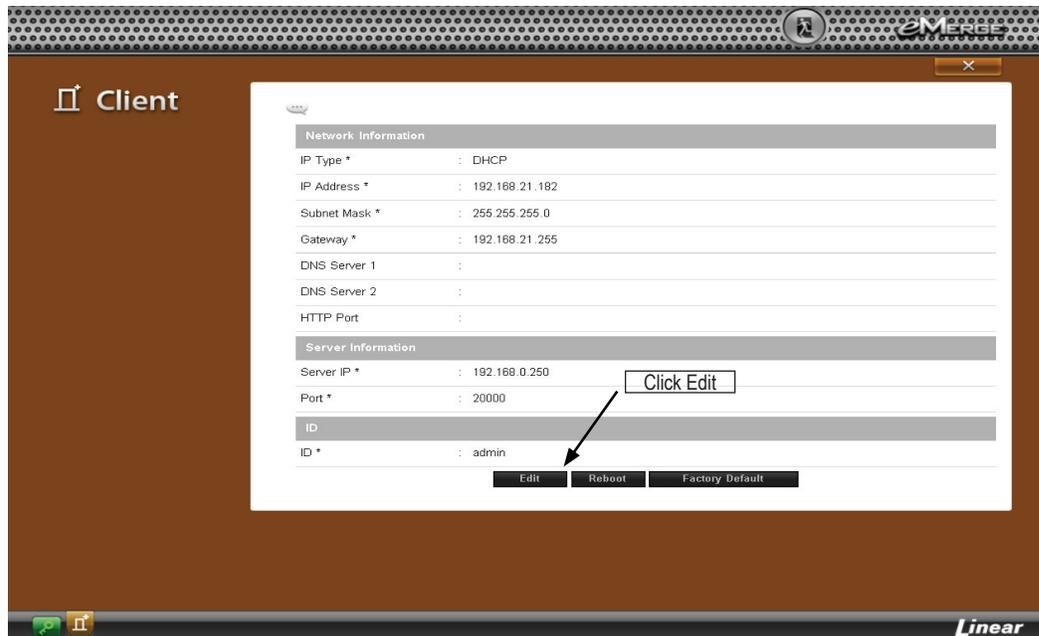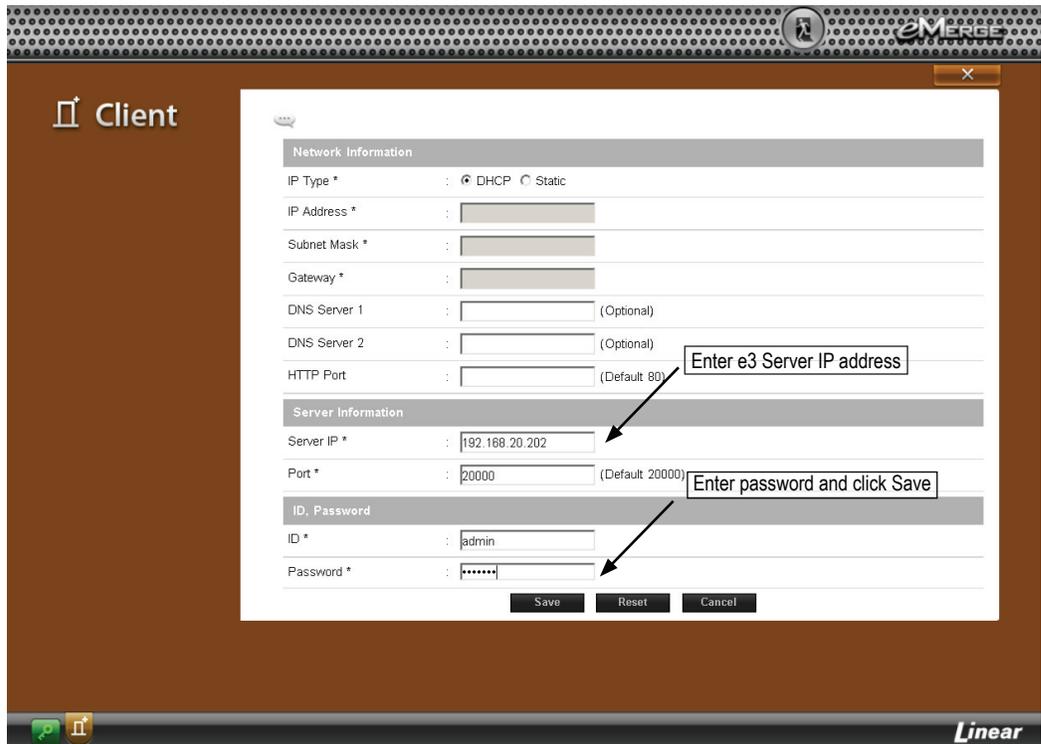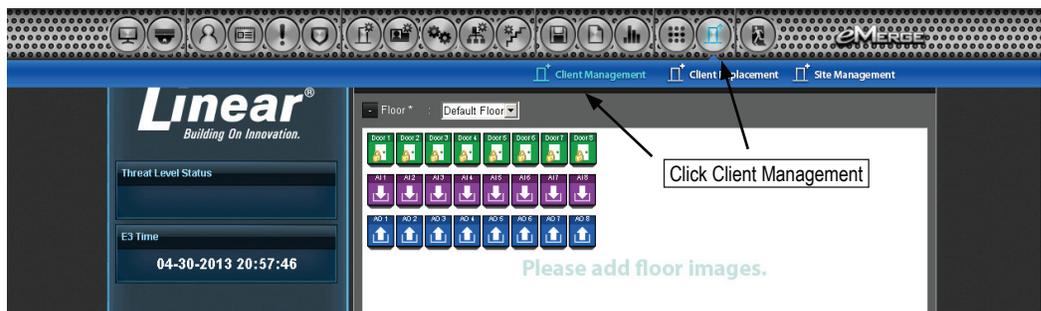
5. Enter the IP address of the server as entered in IP Installer.

6. Enter the password (default = admin) and click **Save**.
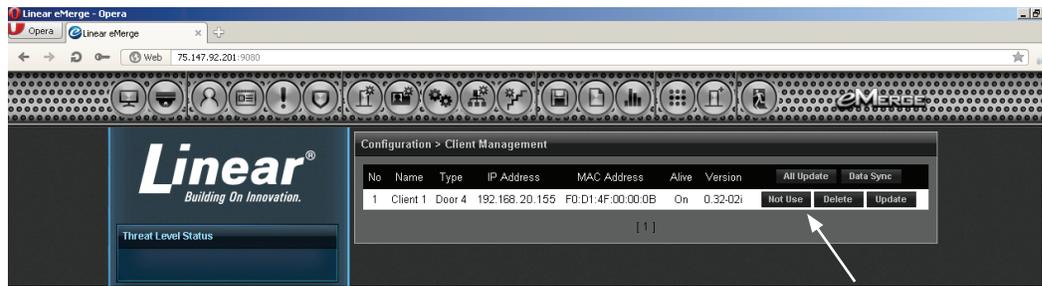
**Link the Client to Server**

1. Using a web browser on a local computer, enter the IP address of the server as listed in IP Installer.

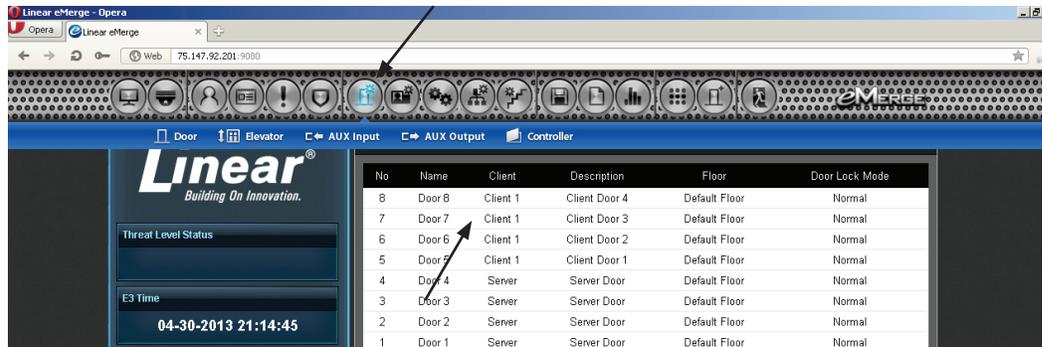2. The browser presents the Linear page as shown.



3. To log on, enter the user name (default = admin) and password (default = admin).



4. After logging in, click *Client Management*.

5. The client will appear in the list. Click the *Use/Not Use* button to link the client to the server. The button will display *Use* when the client is successfully linked to the server.



6. Click the *Door* icon and verify that the client doors are listed. The client and server are now linked together.

# 7.5 Programming the System

The *e3* system provides the ability to access and manage the system from a web browser on any local or remote computer. The system can be programmed using a simple Wizard tool, which allows the user to configure the basic settings of the eMerge system. Visit the Wizard at any time by clicking icon in the lower left corner of the Linear programming window. Refer to the *User Programming Guide* (P/N 620-100240) for specific programming and configuration instructions.

# 8.0 Troubleshooting

Table 8.1: Troubleshooting the System

| Question | Solution |
|---|---|
| The control panel does not power up. | • Check setting of JP1 on middle board (near input power connector) to ensure that the jumper is in the appropriate position for your desired power source.<br>• Measure input power for +12VDC<br>• If RED LED's are off, then input fuse may be blown. This fuse is not field-replaceable. |
| The control panel powers up but does not respond to card readers or inputs. | • Measure power at reader connectors. If no voltage is present, then reader fuse may be blown.<br>• Bring reader and/or input and connect directly at the panel. If it works at the panel, the wire run may be faulty. |
| No network communication exists with the control panel. | • If LAN LED's are off or solid, then no physical network connection exists. Check network cabling.<br>• Verify the Subnet Mask, Gateway, DNS and IP address as provided by the network admin. |
| I have an unlicensed controller, how do I obtain a license key? | • The MAC address is printed on the controller. Using the MAC address, the license key can be obtained by visiting http://www.e3upgrade.com/ and entering the MAC address. |
| How to reboot the system? | • Hardware Reboot system: Momentarily press switch S2 on middle board (near bank of 16 LED's). |
| How to clear the memory of the system and restore factory defaults? | • Press and Hold switch S1 for full 20 seconds on middle board (near bank of 16 LED's).<br>• You may also reboot and factory default the system using the GUI software.<br><br>**Note**: If factory defaulted, all configuration information will be lost including the license key. To retrieve the license key, visit www.e3upgrade.com and enter the MAC address of the controller (MAC Address is printed on the product ). |

**For further troubleshooting assistance, please visit the following online resources:**

◆ http://www.linearcorp.com/faq/

**Linear Technical Support:**

◆ Tel: (800) 421-1587;

◆ Hours: 5:00 AM to 4:30 PM Pacific Time, M-F

# 9.0 Test, Maintenance and Service

## 9.1 Testing

Monthly testing of the *e3* system is recommended.

♦ Check that all used inputs and outputs are correctly functioning with the connected devices.

♦ Check that system and log backups are occurring at scheduled times.

♦ Check for proper operation of backup battery. As a precaution, backup system data before performing a battery test.

## 9.2 Maintenance

The *e3* system requires very little maintenance. It is recommended to check the following every 6 months:

♦ Cover or door is secure

♦ Enclosure is clean and dry

♦ All wires are securely connected to the terminals

## 9.3 Service

There are no user serviceable parts on the e3 controller or on the power supervision and battery charger module. Contact technical service for assistance if you are experiencing operational difficulties.

Batteries used for the power backup should be replaced every 2-3 years. If using two batteries, always replace both batteries with new, identical batteries.

## 9.4 Parts List

| | |
|---|---|
| e3 Polycarbonate Shield | 620-100070 |
| e3 Essential Tamper Switch | 620-100038 |
| e3 Essential Plus Tamper Switch | 2500-2347 |
| e3 PoE module | 620-100159 |
| Linear 30W PoE injector | POE-PLUS |
| Linear 12VDC/24W PIP | 0-291312RU |
| Linear 12VDC/60W PIP | 0-299177RU |
| e3 Replacement Controller (will need new license key) | 620-100307 |
| e3 Replacement Power Supervision/Battery Charger Module | 620-100002 |

# NOTES

# NOTES

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