KT-NCC
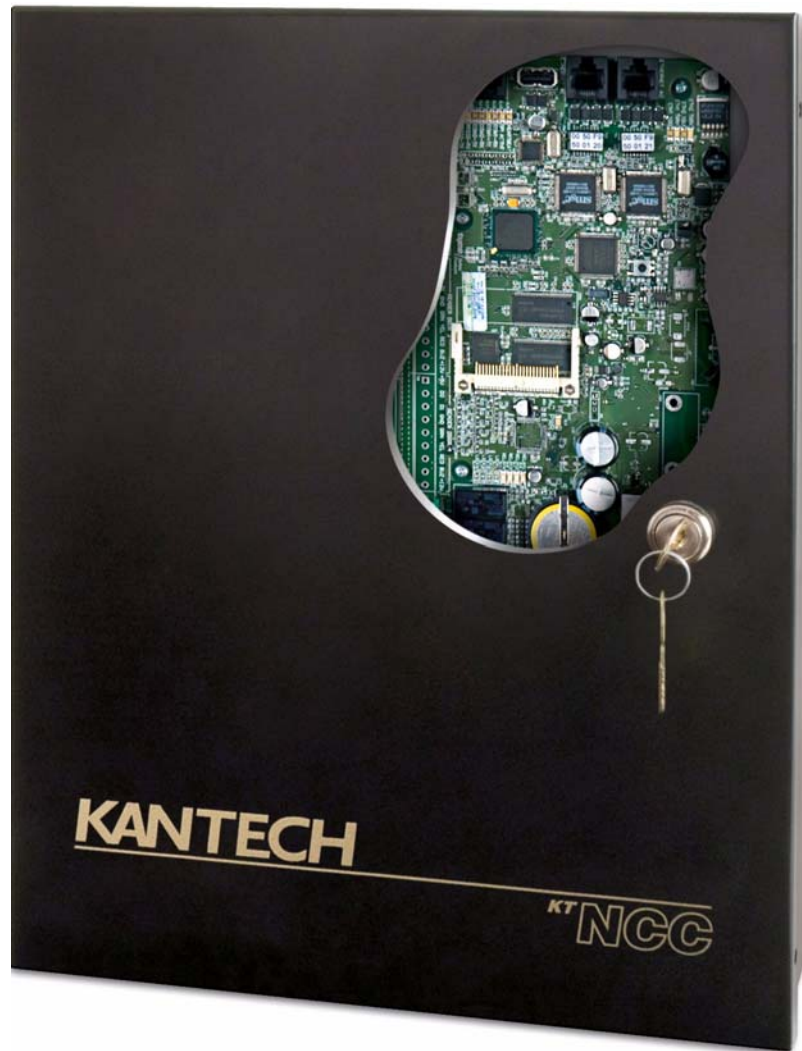
Network Communications Controller

Installation Manual

KANTECH™

Table of Contents

Pre-Installation Information

Copyright Info

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Safety Instructions

Important: NEVER INSTALL THE EQUIPMENT DURING A LIGHTNING STORM!

This equipment, KT-NCC NETWORK COMMUNICATIONS CONTROLLER Model KT-NCC-EU shall be used installed and used within an environment that provides the pollution degree max 2 and over voltages category II NON HAZARDOUS LOCATIONS, INDOOR only. The equipment is FIXED and PERMANENTLY CONNECTED and is designed to be installed by Service Persons only; [service person is defined as a person having the appropriate technical training and experience necessary to be aware of hazards to which that person may be exposed in performing a task and of measures to minimize the risks to that person or other persons.] The equipment is installed in a metallic cabinet that meets the applicable requirements for a FIRE ENCLOSURE.

1. The **connection to the mains supply** must be made as per the local authorities rules and regulations: In the UK as per BS6701. An appropriate disconnect device must be provided as part of the building installation. Where it is not possible to rely on the identification of the NEUTRAL in the AC MAINS SUPPLY, the disconnecting device must disconnect both poles simultaneously (LINE and NEUTRAL).

2. AVOID **setting up** the equipment near heaters, air conditioners, ventilators, and/or refrigerators; DO NOT select a place that exposes your controller to direct sunlight, excessive heat, moisture, vapors, chemicals or dust.

3. If **during the installation** a knockout on the cabinet is removed, it is the installer's responsibility to ensure that the same degree of protection for the cabinet is provided by the use of bushings, fittings, adequate sealant, etc.

4. The metallic **cabinet must be secured to the building structure before** operation. Use four (4) stainless steel tapping screws #8, 32 mm (1.25 in) to mount the cabinet.

5. Regarding the **power supply, it is permanently connected**, fail safe, with double or reinforced insulation between primary and secondary circuits. In EU countries it must meet the applicable requirements of the Low Voltage Directive and is protected as per the EN60950-1: 2001 Standard Requirements. In all other countries, it must be of an approved type acceptable to the local authorities.

6. The **ground connection** must be as shown within the included diagram, or equivalent.

7. **Internal wiring** must be routed in a manner that prevents:

 - Excessive strain on wire and on terminal connections;

 - Loosening of terminal; connections;

 - Damage of conductor insulation.

8. It is the end-user and/or installer's responsibility to ensure that the disposal of the used batteries is made according to the waste recovery and recycling regulations applicable to the intended market.

9. There are **no serviceable parts within the equipment**; For any issues regarding the equipment please contact your installer.

10. **DISCONNECT POWER BEFORE SERVICING**.

Technical Support   For technical assistance with the KT-NCC and other Kantech products, contact technical support, Monday to Friday:

Country/Region	Phone Numbers	Support Hours	Email
North America Toll Free +888 222 1560 (GMT -05:00)			
US and Canada	Direct: +450 444 2030 Fax: +450 444 2029	8:00 to 20:00	kantechsupport@tycoint.com
Latin America (GMT -03:00)			
Argentina	Direct: +5411 4717 2929 Direct: +5411 4717 1320 Direct: +5411 4717 5525 Fax: +5411 4717 1060	9:00 to 18:00	ingenieria@tycoint.com
Asia (GMT +08:00)			
Singapore	Direct: +65 6319 9820 Fax: +65 6319 9821 Direct: +65 6389 8297 Fax: +65 6389 8292	8:30 to 18:00	swhuin@tycoint.com wtooh@tycoint.com
Europe Toll Free +800 CALL TYCO / +800 2255 8926 (GMT +01:00)			
Bahrain	+800 04127	8:00 to 18:00	tfsemea.support@tycoint.com
France	+33 04 72 79 14 83		
Greece	+00 800 31 22 94 53		
Russia	+8 10 800 2052 1031		
Spain	+900 10 19 45		
Turkey	+00 800 31 92 30 37		
United Arab Emirates	+800 0 31 0 7123		
United Kingdom	+44 08701 ADT SUP / 44 08701 238 787 Direct: +31 475 352 722 Fax: +31 475 352 725		

KT-NCC Compliance Specifications

KT-NCC FCC & IC Compliance

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation. This class A digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations. The KT-NCC is also compliant with EN55022: 1994, amendment 1:1995, Class A.

UL 294 Compliance Notice

- The KT-NCC is UL 294 listed with EntraPass, KT-300 Door Access Controllers, IoProx Proximity readers, and Trex request to exit devices
- Each KT-NCC enclosure will be installed in a secured and protected location with tamper supervision
- Each KT-NCC will be powered by a class 2 transformer such as the TR1640P/UL.
- Each KT-NCC will be battery backed up with a KT-BATT-12, 12V/7Ah battery
- Should additional sites or loops of KT-300 controllers be added, the installer must configure alarms to be acknowledged in the event of communication troubles or failures
- Each KT-NCC will be equipped with an AC powered LED installed outside the KT-NCC and connected to an onboard relay, and visible at all time to monitor relay status, as per UL294, section 32.1.5.

UL 1076 Compliance Notice

- The KT-NCC is UL 1076 Listed as a Commercial Proprietary Control Unit Accessory (Section 83.2), with EntraPass and Redundant Server, alarm system features, KT-300 Door Access Controllers, IoProx Proximity readers, and Trex request to exit devices – other sensor devices (temperature, water level, etc.) may be used as long as they are also UL 1076 Listed.
- The EntraPass and Redundant Server shall be running at all time, and manned 24 hours a day, 365 days a year – The EntraPass and Redundant Server will each have their own operator workstation.
- Data processing equipment and office appliance and business equipment used as central supervisory equipment station shall be Listed to Information Technology Equipment - UL 60950.
- Should the EntraPass and/or Redundant Server be replaced, a UL 60950 listed computer must be used.
- The following recommended system requirements apply to the EntraPass Server, Redundant Server, Video Vault, Card Gateway, SmartLink, and Workstation:
  - Operating Systems (32-bit mode only): Windows® 2000/XP/2003 Standard and Enterprise Server Editions / Vista
  - Processor: Pentium IV at 1.8 GHz
  - 1 GB RAM
  - Minimum free hard disk space: 20 GB
  - Color depth: 24-bit (16 million colors), required for Video Integration only, see **Note**
  - Screen resolution: 1024 x 768
  - Graphic adapter card: 32 MB
  - 48X CD-ROM drive
  - Network Interface card: 10/100 Base-T network adaptor

Actual requirements may vary based on your operating system and configuration.

- The Central Supervisory Equipment shall employ supply line transient protection complying with the Standard for Transient Voltage Surge Suppressors, UL 1449, with a maximum marked rating of 330 V.
- The Central Supervisory Equipment shall employ signal line Transient protection complying with the Standard for Protectors for Data Communications and Fire Alarm Circuits, UL 497B, with a maximum marked rating of 50 V.
- The Central Supervisory Equipment shall employ that communication circuits and network components connected to the telecommunications network shall be protected by secondary protectors for communication circuits. These protectors shall comply with the Standard for Secondary Protectors for Communications Circuits, UL 497A. These protectors shall be used only in the protected site of the telecommunications network.

- The Central Supervisory Equipment shall be installed in a temperature controlled environment. A temperature controlled environment is defined as one that can be maintained between 13° - 35°C (55° - 95°F) by HVAC system. Twenty-four hours on standby power shall be provided for the HVAC system. The standby power system for the HVAC system may be supplied by an engine driven generator alone. A standby battery is not required to be used.
- A marking to identify the application and signaling function of the product is located on the inside of the unit (inner door sticker).
- For certified commercial proprietary control unit accessory applications, the requirements of UL 1076, Commercial Proprietary Control Unit Accessory also apply.
- All alarms shall be reported and acknowledged in the following priority*:
    1. Fire alarm and industrial supervision where a risk of injury to persons, or damage or destruction of property may be involved
    2. Hold-up or panic alarm
    3. Burglar alarm
    4. Watchman tour (Guard tour)
    5. Fire-alarm supervision
    6. Burglar-alarm supervision
    7. Industrial supervision where a risk of injury to persons, or damage or destruction of property will not be involved

 * To set these priorities, please adjust the Event Parameters, found in EntraPass System.

- The following Kantech readers were validated by UL for the UL 1076 standard: P225W26, P225KPW26, P225XSF, P225KPXSF, P325W26, P325KPW26, P325XSF, P325KPXSF, and P600.
- For remote alarm monitoring, the Kantech part number KT-3LED-PLATE must be installed. Refer to the procedure **Install the KT-3LED-PLATE** on **Page 13** for details.

KT-NCC UL Compliance

In order to comply with UL listings, the following has to be met:

- Use of a UL listed 60950 computer
- Use of a UL recognized tamper switch on every housing cabinet for the KT-NCC
- Use only UL listed or recognized cables
- Use only UL listed or recognized adaptors
- Use only a UL listed transformer such as Kantech TR1640P/UL
- Use a Kantech KT-BATT-12, 12V/7Ah battery

Note: The backup battery provides operation for up to 6 hours; This battery has only been tested for only 4 hours as per Section 33 of UL 294, fifth edition. A message will be sent to the monitoring station when the battery life has less than 4 hours remaining.

CE & C-Tick Compliance

EN50133-1: Alarm systems - Access control systems for use in security applications: system requirements.

EN55022: Information technology equipment, radio disturbance characteristics.

EN60950: Information technology equipment, safety.

EN61000-6-1: Electromagnetic Compatibility (EMC) - Generic Standards - Immunity for residential, commercial and light-industrial environments.

EN61000-6-2: Electromagnetic Compatibility (EMC) - Generic Standards - Immunity for industrial environments.

Overview

Introduction   The KT-NCC Network Communications Controller, the latest controller in the Kantech family of products, redefines the way you can manage access control for a widely-dispersed environment. In fact, all events from the controllers are stored in the KT-NCC for additional security, in case of communications failure between the controllers and the server. This innovative way of bringing the communication closer to the controller eliminates wiring costs, PC reliability issues, and cuts down the actual distance the information has to travel through the network, greatly reducing the bandwidth required. The KT-NCC can connect up to seven loops per gateway and features four relays that can activate in the event of communication loss, power failure, or upon activation of a tamper switch.

Combining the powerful EntraPass Global Edition software to the KT-NCC also allows for a more effective way of utilizing global security features such as the anti-pass back, alarm systems, guard tours, dual custody, etc.

The KT-NCC's main task is to acquire information from all input channels and relay the results back to all output channels through the controller loops. The KT-NCC communicates with the server through an ethernet 10/100 Base-T port and indicates its communication status through a heartbeat LED. The KT-NCC will report low battery and battery failure events, and can activate relays in instances of battery power loss or communication failure. For added security, the KT-NCC has an onboard rechargeable lithium battery that ensures data retention for a minimum of 75 hours, to safeguard any loss of data due to a complete failure.
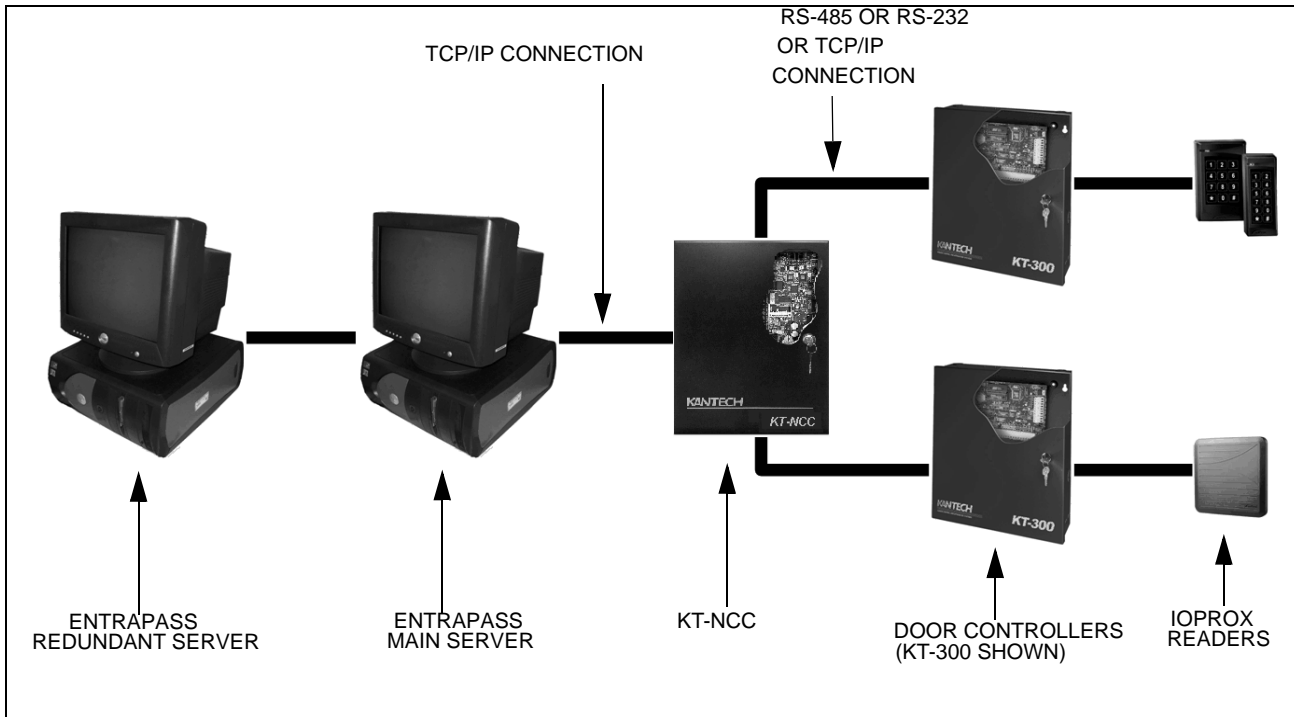

Figure 1. KT-NCC Configuration

**Environmental
Specifications**

Table 1. Environmental and Electrical Specifications

Specification	Description
Operating Temperature	2°C to 49°C (35°F to 120°F)
Humidity Level	0 to 85% non-condensed, indoor use only
AC Power Input (UL/CSA)	120 VAC, 16.5 VAC, 40VA class 2 transformer (Part #: for USA **TR1640P/UL** - Part # for Canada **TR1640P/CSA**)
AC Power Input (CE)	240 VAC, 16.5 VAC, 40VA (Part #: **17000044** included in the KT-NCC-EU cabinet kit for EMEA)
AC Power Rating	16.5VAC, 40VA, 2.42A
Battery Back-Up	1 KT-BATT-12, 12V/7Ah battery supervised, provides a minimum of 4 hours of operation

**KT-NCC
Specifications**

Table 2. KT-NCC Specifications

Specification	Description
Cabinet Dimensions	375.9 mm (14.80") x 304.8 mm (12.0") x 125.7 mm (4.95")
Cabinet Weight (UL)	4.0 kg (8.8 lb)
Cabinet Weight (CE)	4.8 kg (10.6 lb)
KT-NCC Board dimension with heat sink	22.90 cm (9") x 13.98 cm (5 1/2") x 5.20 cm (2 1/16")
Communication Ports	RS-485 x 2, RS-232, Ethernet 10/100 base-T
Communication Speed	Up to 19,200 Baud for serial communication
Firmware Flash Memory	16 MB
SDRAM Memory	64 MB (Protected by a rechargeable Lithium ION battery for a minimum of 75 hrs)
Auxiliary Power Output	12 VDC, 250 mA, resettable fuse protected
Relays	4 form "C" relays, 30 VDC/3 Amps

**KT-NCC
Characteristics
With EntraPass
Global Edition**

Table 3. KT-NCC Characteristics With EntraPass Global Edition

Specification	Description
Controllers per KT-NCC	128
Loops Per Gateway	7 loops (2 x RS-485, 1 x RS-232, 4 x IP)
Maximum Controllers per Loop	RS-485 (COM1) = 32 RS-485 (COM2) = 32 RS-232 = 32 IP#1 = 8 IP#2 = 8 IP#3 = 8 IP#4 = 8
Number of Cards	56,000
Readers/Keypads per Gateway	128 X 2 = 256
Door Lock Outputs per Gateway	128 X 2 = 256
Maximum Number of Floors	64 floors
Access Levels	250
Access Door Groups	100
Relay Groups	100
Controller Groups	100
Access Code Groups	100
Operating System	Windows CE embedded v 5.0

Ordering Information

Models Available

- **KT-NCC**: Cabinet with KT-NCC PCB for North America
- **KT-NCC-PCB**: KT-NCC PCB with parts
- **KT-NCC-CAB**: Cabinet only
- **KT-NCC-ACC**: miscellaneous parts for PCB
- **KT-NCC-PCB-ACC**: miscellaneous parts for PCB and cabinet
- **KT-NCC-EU**: Cabinet with KT-NCC PCB and transformer for Europe and Asia

Table 4: Bill of Material

Item Description	KT-NCC (Notes 1,2)	KT-NCC-PCB	KT-NCC-CAB (Note 1)	KT-NCC-ACC	KT-NCC-PCB-ACC (Note 2)	KT-NCC-EU (Notes 1,2)
KT-NCC PCB	1	1	-	-	-	1
Cabinet	1	-	1	-	-	1
VC-485 adapter cable	-	-	-	1	1	-
Ground wire (PCB to cabinet)	1	-	-	-	1	-
Ground wire (door to cabinet)	1	-	-	-	1	-
Green ground wire 18 AWG 20 cm (8 in.)	-	-	-	-	-	1
Tamper switch	1	-	-	-	-	1
Battery cable	1	-	-	-	1	1
KT-NCC-ACC	1	-	-	-	-	1
KT-NCC-PCB-ACC	-	1	-	-	-	-
Inner door sticker for North America, DN1642, see **Figure 26 on Page 38**	1	-	1	-	-	-
Inner door sticker for Europe and Asia, DN1720, see **Figure 27 on Page 39**	-	-	-	-	-	1
Installation Manual DN1611 - English	1	1	-	-	-	1
Transformer 240 VAC, 16 VAC, 40 VA	-	-	-	-	-	1
Fused terminal blocks	-	-	-	-	-	1
Fuse slow/blow 250 VAC, 315 mA	-	-	-	-	-	1

Note 1: The **KT-NCC**, **KT-NCC-CAB** and **KT-NCC-EU** models also include parts for the CAM LOCK.

Note 2: The **KT-NCC**, **KT-NCC-PCB-ACC** and **KT-NCC-EU** models also include screws and locknuts.

Pre-Installation

Before installing the KT-NCC, confirm that all parts are in order, all necessary tools are available, and that the site is properly prepared.

If you are connecting your KT-NCC to the EntraPass Global Edition software, you must make sure that you are running version 3.17 or higher.

Equipment Checklist UL Only

Note: The equipment checklist is not required for the **KT-NCC-EU** since it is fully assembled by Kantech.

- KT-NCC-CAB: Cabinet with inner door sticker UL, DN1642,
- KT-NCC-PCB: KT-NCC-PCB with accessory kit KT-NCC-PCB-ACC and KT-NCC, *Installation Manual*, DN1611,
- KT-NCC-ACC: Accessory kit with VC-485 adapter cable,
- KT-TAMPER: Tamper Switch,
- KT-NCC, *Quick Configuration Guide*, DN1656.
- An AC transformer 16.5 VAC, 40 VA, class 2 wire-in or plug-in transformer. The Kantech **TR1640P/UL** (in USA) or **TR1640P/CSA** (in Canada) is recommended.
- Kantech 3-LED plate part number **KT-3LED-PLATE** for remote alarm monitoring

Additional Parts

Along with these parts, the following items will be needed to correctly install the KT-NCC:

- One **KT-BATT-12**, 12V/7Ah battery,
- RJ-45 Network cable(s)

Tool Checklist

The following tools will be required to install the KT-NCC:

- Small screwdriver (included in the KT-NCC-ACC and KT-NCC-PCB-ACC kits)
- 0.65 cm (0.25 in) nut driver
- Wire strippers
- Small needlenose pliers

Reading Checklist

We strongly suggest that you keep the following documents close at hand:

- *EntraPass Global Edition Reference Manual*, DN1316
- *KT-NCC Quick Configuration Guide*, DN1656
- *How to Migrate from a Windows Global Gateway to KT-NCC Application Note*, DN1661
- *To Upgrade EntraPass Global Edition from Version 1 to Version 3 Application Note*, DN1541
- *Upgrading NCC8000 to NCC Windows Application Note*, DN1567
- *Setting Up EntraPass Mirror Database and Redundant Server Application Note*, DN1317
- *Lantronix UDS-10 Setup Instructions Application Note*, DN1506
- *Lantronix UDS1100 Setup Instructions Application Note*, DN1665

Site Checklist

Ensure the following:

- The mounting site is ready. The upper mounting screws should be 25.65 cm (9.9 in) center to center, the bottom mounting holes are 31.50 cm (12.40 in) below the upper mount holes.
- The site has been inspected and all wiring complies with UL or CE requirements and other codes as appropriate.
- All preliminary site work is completed and the site is clean and free of dust or other contaminants.

KT-NCC Installation

The KT-NCC installation process consists of installing your KT-NCC and then configure it in EntraPass Global Edition software.

To install the KT-NCC, first mount the cabinet, connect back-up power and grounding connections, then wire all relays and controller loops to the board.

Mount the KT-NCC Enclosure

The KT-NCC cabinet does not require any additional enclosures.

- The cabinet must be mounted indoor in a secure, yet accessible, location that supports the environmental conditions listed in the environmental specifications on Table 1 on Page 6.
- Leave 23 cm (8 in) clearance space around the sides of the cabinet, and at least 33 cm (13 in) space in front of the cabinet.
- Avoid placing the cabinet near electrical or communication devices.
- Electrical metallic tubing (EMT) 1.9 cm (3/4 in) conduit knockouts are provided on all sides of the cabinet.
- Install the cabinet on the selected wall using four screws fed through the mounting holes. Refer to Figure 28 on Page 40 for details on the KT-NCC enclosure.
- **For KT-NCC UL Cabinet only** - In order for the KT-NCC to comply with UL294 section 32.1.5, the installation technician has the responsibility of installing an AC powered LED outside the KT-NCC cabinet and connect it to relay # 2 on the KT-NCC. The LED must be visible at all time.

Remove the Enclosure Door (Optional)

The enclosure door can be removed to facilitate access to the KT-NCC board and to ease installation. To remove the door:

1. **For KT-NCC UL Cabinet only** - Remove the ground wire from the screw on the door, see Figure 2 on Page 10 below.
2. Lift the door up until the hinges no longer touch the pins.

   Note: **For KT-NCC UL Cabinet only** - When re-attaching the ground wire be sure to slide the metal loop at the end of the wire onto the screw, then add the nut on the screw to ensure that the ground wire stays in contact with the door.
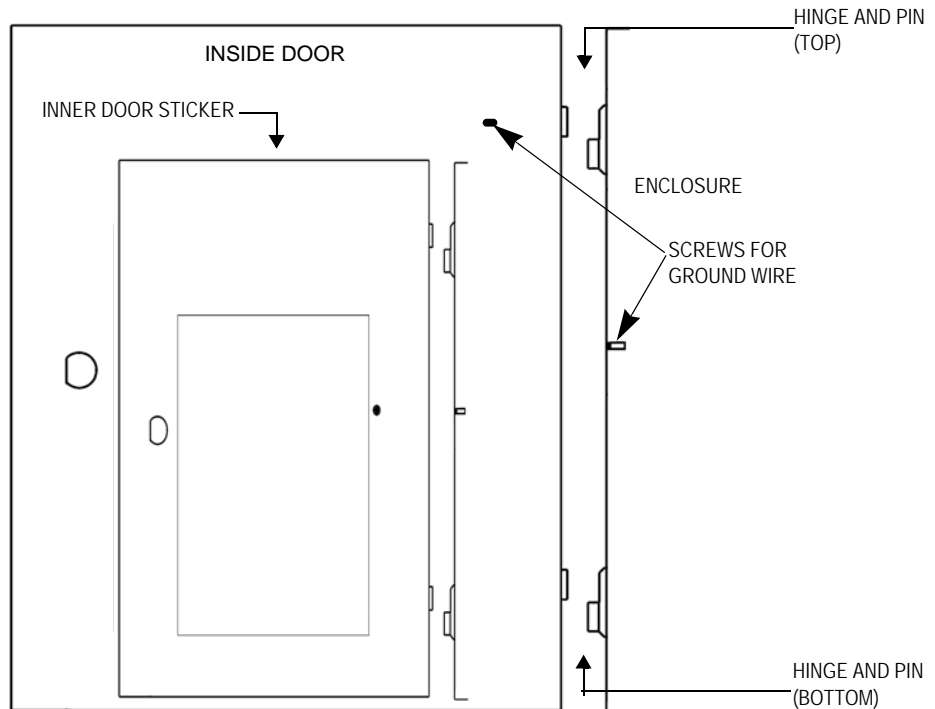

Figure 2. Enclosure Door and Hinges

Earth Ground   Use a single conductor solid copper wire to ground the KT-NCC to a good earth ground as per the local electrical code. Refer to Figure 3 on Page 11 below.
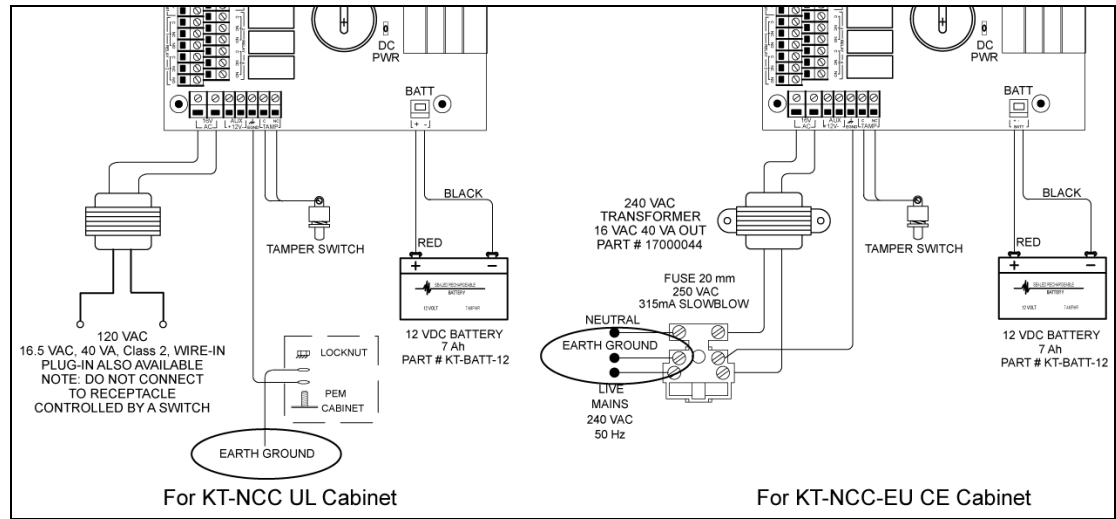

Figure 3. Tamper Switch and Earth Grounding

Connect the KT-NCC to Controllers Loops

The KT-NCC can connect to two RS-485 expansion buses and through one RS-232 connection. The following figures demonstrate these connections. The maximum connection loop length with the appropriate cable is 1.2 kilometers (4,000 feet).

Note: Connecting several KT-NCC's at a single point is not acceptable nor are "Y" or "spider web networks".

Note: There is no end-of-line resistor to install on the RS-485 terminals on the **last** controller of a loop.

1. The two RS-485 terminals (labeled COM 1 and COM 2) can be found next to the relay terminals at the bottom of the left side of the KT-NCC board. Wire the loops according to Figure 4 on Page 11 below: The orange wire connects into the + terminal; the blue wire connects into the - terminal; and the white wire connects to the **AUX 12V-.**
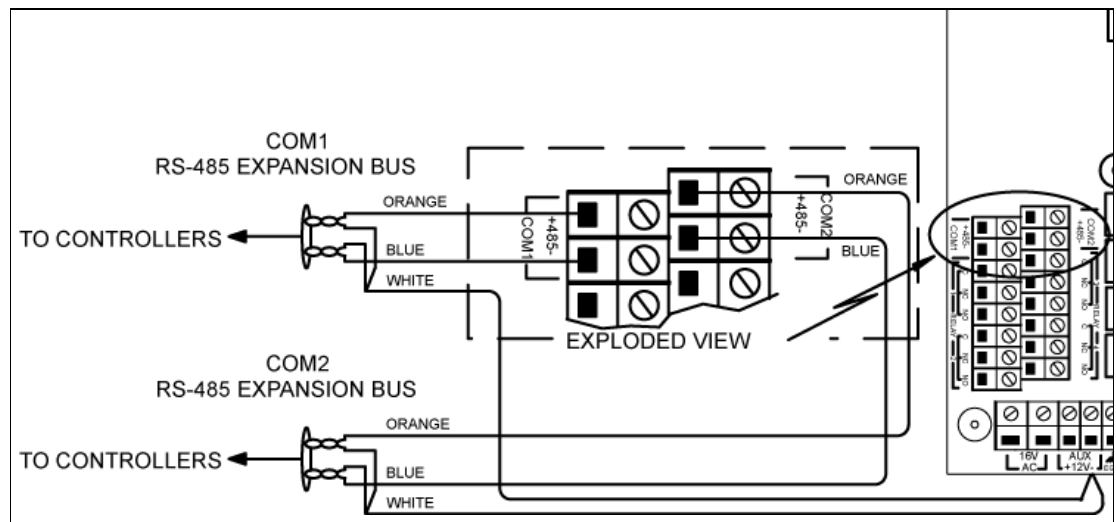

Figure 4. RS-485 Connection

2. The RS-232 connection is demonstrated in Figure 5 on Page 12. A straight flat cable connects from the RS-232 connector on the top of the KT-NCC board to a VC-485.
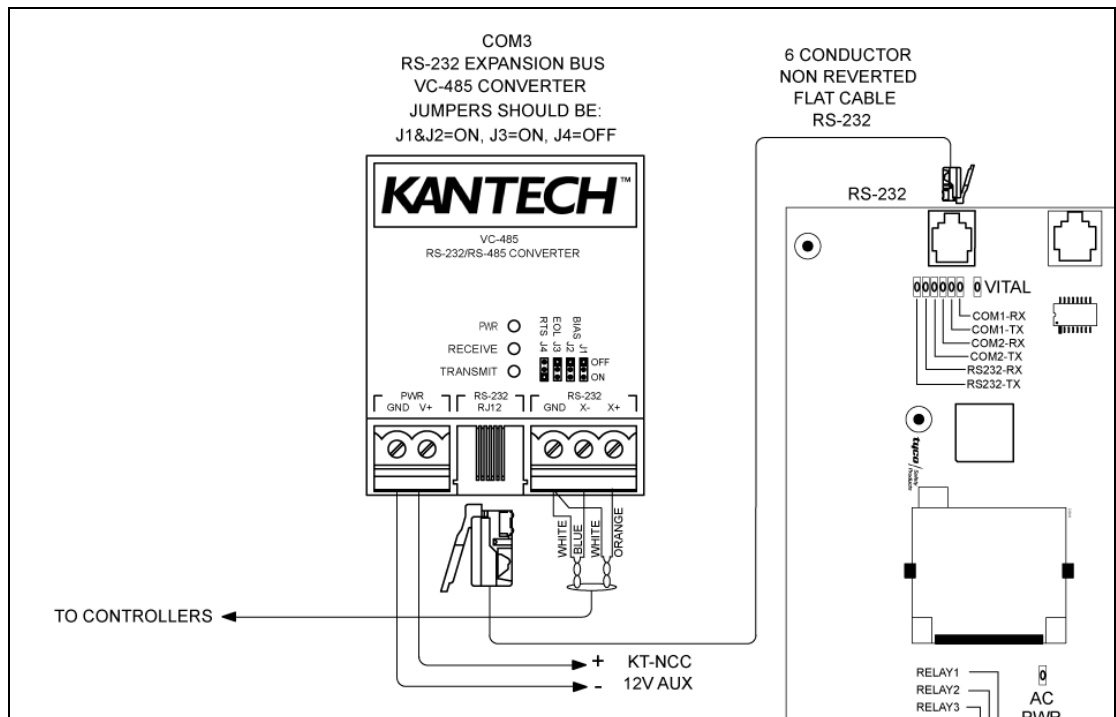
Figure 5. RS-232 Connection

Relays

The KT-NCC comes with four onboard relays located below the RS-485 terminals (COM 1 and COM 2). These relays activate under conditions chosen in EntraPass Global Edition software. By default, onboard relay #2 is configured to monitor AC power failure. (Configuration is done in the Gateway dialog in EntraPass.)

For the KT-NCC UL Cabinet only - In order for the KT-NCC to comply with UL294 section 32.1.5, the installation technician has the responsibility of installing an AC powered LED outside the KT-NCC cabinet and connect it to relay # 2 on the KT-NCC circuit board. The LED must be visible at all time.
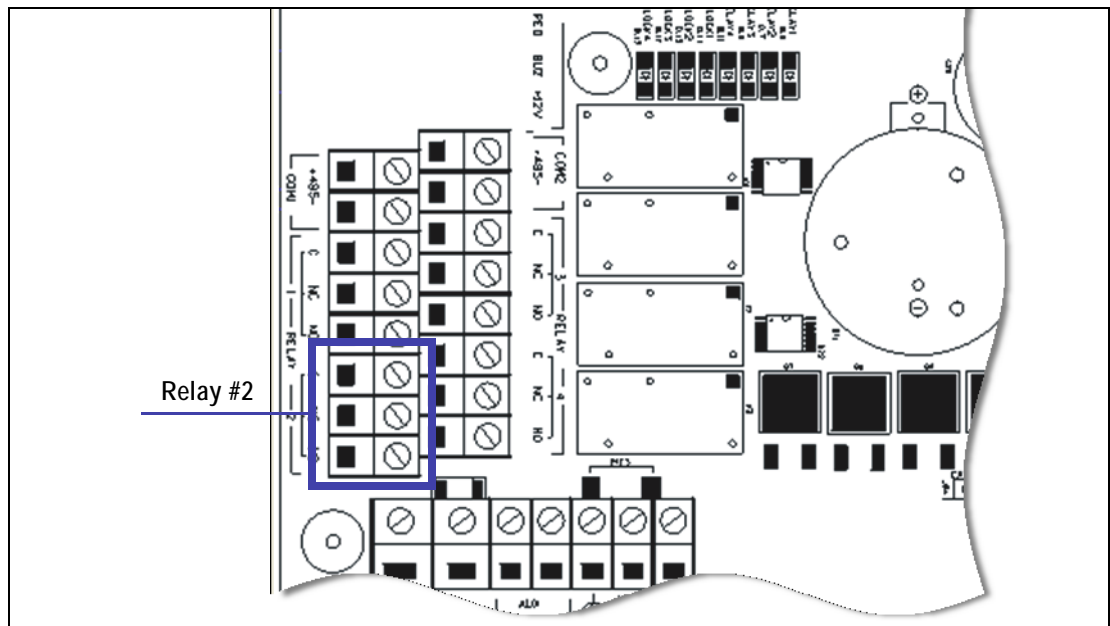
Figure 6. Onboard Relay

Note: Relay #2 is located at the bottom left of the KT-NCC circuit board.

For more information on configuring relays, please refer to the *EntraPass Global Edition Reference Manual,* DN1316.

Install the KT-3LED-PLATE

For the arm/disarm operation, install the 3-LED plate (Kantech part number KT-3LED-PLATE) according to UL 1076 standards by following this procedure:

For the KT-400 Section:

1. Connect the LED black wire to GND AUX (which is associated with the green and red LEDs).
2. Connect the LED red wire to NO Relays (which is associated with the red LED).
3. Connect the LED red wire to NC Relays (which is associated with the green LED).
4. From AUX, use the 12-V cable and connect it to C Relays (which is associated with the red and green LEDs).

For the KT-300 Section:

1. Connect the LED black wire to GND AUX (which is associated with the red and green LEDs).
2. Connect the LED red wire to RL2 on the KT-300 (which is associated with the red LED).
3. Connect the LED red wire to RL1 on the KT-300 (which is associated with the green LED). To do so, **Reverse** must be selected in **Devices>Relay>Operation** mode.

Note: The green LED corresponds to **Ready to arm** or **Prevent arming**.

Note: When the red LED is ON, it corresponds to the **arm** function, and when the red LED is OFF, it corresponds to the **disarm** function. The system cannot be armed or disarmed when the **Ready to arm** green LED is OFF.

The electrical plate, with 22 AWG wires, made of stainless steel is considered as a standard.

Note: The 3-LED plate must be located near the reader(s) that is(are) designed to arm or disarm the alarm system. It must be within the secured side of the customer's premises.

EntraPass Configuration

1. From **Devices**, in the **Gateway** dialog box, select the **Onboard Relays** tab, and then click **Server Communication failed** in the **Onboard relay** drop-down menu.
2. From **Definition**, in the **Alarm system** dialog box, select the **Input** tab, and then, click **Single** in both **Alarm level #1** and **Prevent arming** menu. Select the appropriate inputs, that should be similar - on the KT-300 or KT-400 controller. To confirm it, click **OK**.
3. From **Definition**, in the **Alarm system** dialog box, in the **Relay 1 of 2** tab, in the **System status - relay**, choose the wanted relay to use in order to enable **Ready to Arm**. To confirm it, click **OK**. Close the dialog box, and then click **Yes**.

Note: For additional software configuration, please refer to *EntraPass Global Edition Reference Manual*, DN1316.

Hardware Configuration

• From the KT-NCC selected relay (C and NO) as defined previously in the EntraPass configuration, connect a 2-wire cable to the selected input door.
• For the KT-400, use C and Z inputs.
• For the KT-300, use C and the selected input.

Note: The polarity has no importance.

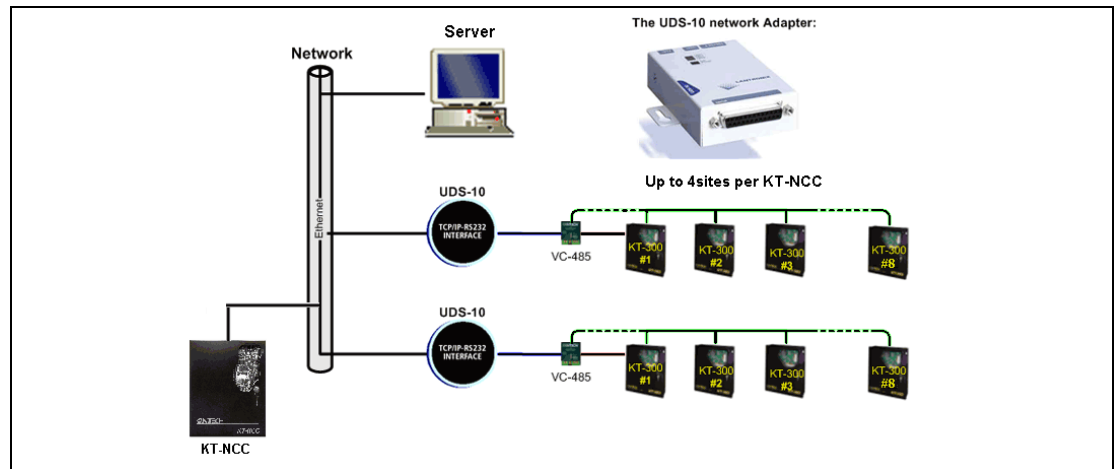| **Install Additional Sites** | You can install four additional sites of eight controllers using a Lantronix LA-UDS10 or LA-UDS1100 for each site, as shown in Figure 7 on Page 14 below. |

Figure 7 Additional Sites Installed with the Lantronix Network Adapter

> **Note:** This type of installation has not been verified by UL.

| **Install the 12V/ 7Ah battery** | The cabinet is large enough to accommodate the battery backup supply and the necessary wiring connections for most applications. The battery sits in the enclosure as shown in Figure 28 on Page 40. |

1. Place the KT-BATT-12, 12V/7Ah battery in the cabinet.
2. To connect the board to the battery, connect the battery to the RED and BLACK leads on the KT-NCC as illustrated in Figure 8 on Page 14 below.
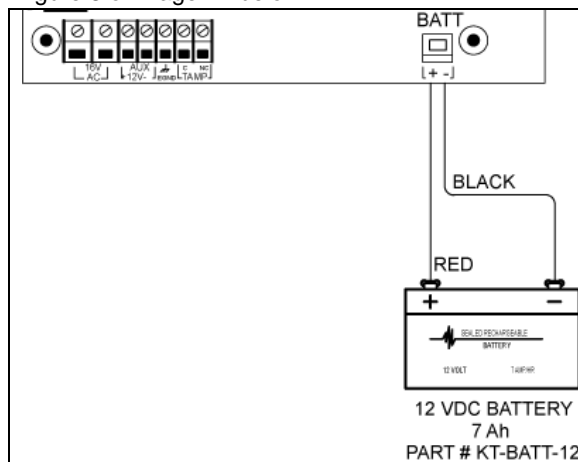
Figure 8. Connecting the Battery

> **Note:** The backup battery will support normal operations for up to 4 hours if the AC supply is removed. An internal battery verification will cut the battery power if the battery voltage level falls below 9.5 volts.

| **Install the AC Transformer** | 1. Install the 16.5 VAC, 40 VA, class 2 transformer. KT-NCC unit will not start on battery alone. |

> **Note:** That step doesn't apply to the **KT-NCC-EU** Cabinet.

2. Power up the KT-NCC.
3. Make sure the KT-NCC is in factory default before you start the configuration. Check the blue heartbeat LED located next to the RS-232 connector to determine the status of communication and other vital parameters. (Refer to Table 7 on Page 41 for details on the heartbeat pulses.)
4. We suggest that you fill-out the detachable KT-NCC *Configuration Reference Sheet* (on the last page of this manual) with your configuration information and keep the information close at hands.

KT-NCC Software Configuration

Pre-Configuration

Before you register your KT-NCC to EntraPass Global Edition software and start configuring it, you must verify the following:

- Make sure that you are running version 3.17 or higher of EntraPass Global Edition software.
- Define what type of connection your network architecture will be requiring: LAN or WAN and DHCP with enterprise server; DHCP with EntraPass server; Static IP address.
- Once you have defined the type of connection you will be using, the System Administrator has to provide you with the proper IP address information.
- We suggest that you fill-out the detachable KT-NCC *Configuration Reference Sheet* with your configuration information and keep the information close at hands. The sheet is located on the last page of this document.

Configuration Scenarios

Two types of network architectures exist: Local Area Network (LAN) and Wide Area Network (WAN). Each of these types of architecture has various possible configurations.

LAN enables users to communicate, exchange data and share resources in an internal network. A local network can be made up of a server and one or several controllers connected to the server through a hub or switch. Whatever the case, an IP address has to be assigned so that the KT-NCC controllers and the EntraPass server can communicate. When the EntraPass server is used, a static or DHCP address can be assigned to establish the communication. When the Enterprise server is used, the DHCP server assigns a dynamic IP address.

WAN is generally deployed on a long geographic distance and connects two or several local networks. The wide area network may use public networks to communicate and transmit data between the distant networks.

In a WAN architecture, IP addresses can be reserved or the server could be left to assign IP addresses automatically (DHCP).

Here is the definition of the different scenarios and the basic steps you will follow to configure your system.

DHCP with Enterprise Server IP Address (LAN)

You will use this type of configuration in an environment where the Enterprise DHCP server will assign IP addresses automatically for communication with the KT-NCC controller(s).
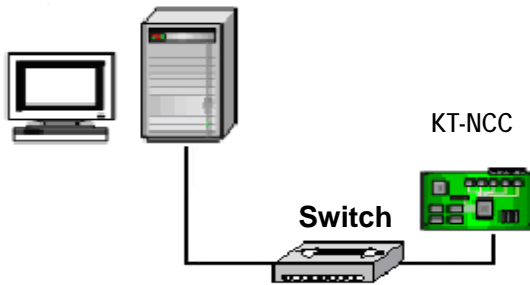

EntraPass Server

Enterprise DHCP Server
Already installed
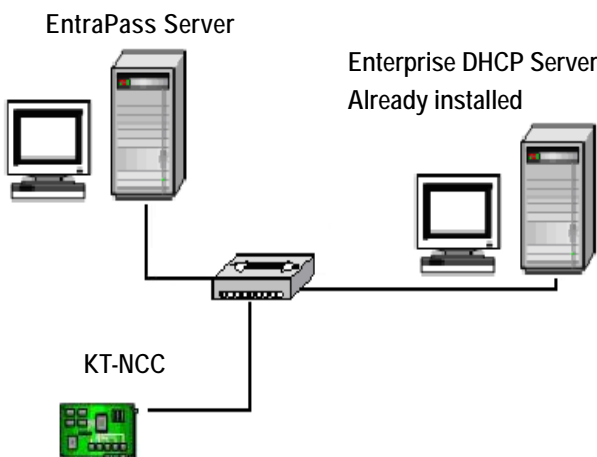
KT-NCC

a Perform a hard reset (See instructions on page 19.)
b Connect your KT-NCC to the network (See instructions on page 20.)
c Register your KT-NCC to the EntraPass Global Edition network (See instructions on page 21.)
d Configure gateway parameters (See instructions on page 23.)
e Check the connection status. (See instructions on page 35.)

DHCP with EntraPass Server IP Address (LAN)

You will use this type of configuration in an environment where the EntraPass DHCP server assigns the reserved IP addresses automatically for communication with the KT-NCC controller(s). The IP address will be configured directly in the EntraPass Global Edition software.
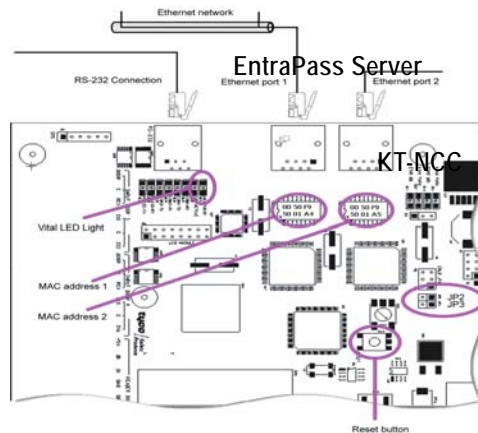
EntraPass DHCP Server

KT-NCC

Switch

a Perform a hard reset. (See instructions on page 19.)

b Connect your KT-NCC to the network. (See instructions on page 20.)

c Register your KT-NCC to the EntraPass Global Edition network (See instructions on page 21.)

d Configure gateway parameters (See instructions on page 25.)

e Check the connection status. (See instructions on page 35.)

Static IP address

You will use this type of configuration in an environment where the Network Administrator will determine the IP addresses for communication between the EntraPass server and the KT-NCC controller. The IP address will be configured using the KT-NCC Web Configuration tool.

Ethernet network

EntraPass Server

RS-232 Connection   Ethernet port 1   Ethernet port 2

KT-NCC

Vital LED Light

MAC address 1

MAC address 2

Reset button

a Perform a hard reset. (See instructions on page 19.)

b Connect your KT-NCC to the network. (See instructions on page 20.)

c Register your KT-NCC to the EntraPass Global Edition network (See instructions on page 21.)

d Assign Static IP address using the KT-NCC Web Configuration tool and configure gateway parameters (See instructions on page 28.)

e Check the connection status. (See instructions on page 35.)

WAN Configuration   You will use this type of setup in an environment where remote sites are protected with routers and they communicate with each other through the Internet.
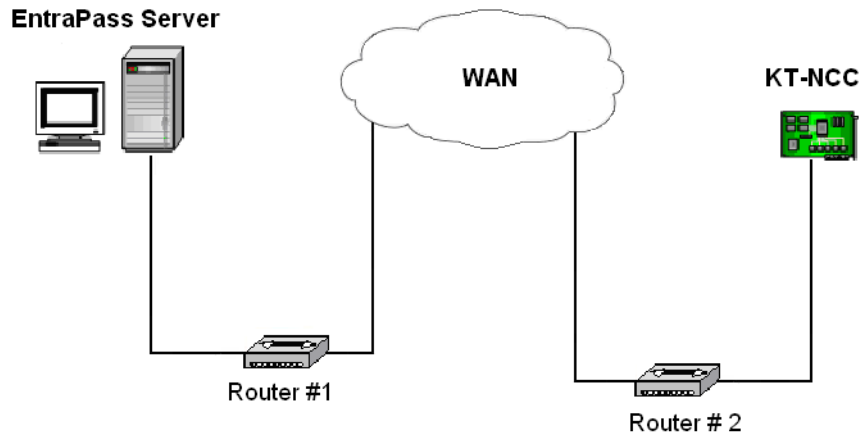
a   Initialize the KT-NCC in factory reset mode. (See instructions on page 19.)
b   Verify the port forwarding configuration with the Network Administrator.
c   Connect the KT-NCC to the network. (See instructions on page 20.)
d   Register the KT-NCC to the EntraPass Global Edition server (See instructions on page 21).
e   Enter TCP/IP parameters in the EntraPass server and configure gateway parameters (See instructions on page 32).
f   Check the connection status. (See instructions on page 35.)

Port forwarding

Before you start configuring the KT-NCC in a WAN environment, we suggest that you verify the port forwarding parameters with the System Administrator.

- Port forwarding configuration is only done on static IP or reserved DHCP addresses.
- Port forwarding is done to the same IP address. If you install more than one KT-NCC with a router, you should use different ports for every KT-NCC.

Site Server Router #1

- Ensure that port 18710 is forwarded to the address of the EntraPass Server.
- Ensure that UDP protocol is selected.

KT-NCC Site Router #2

- Ensure that the KT-NCC port router is fowarded to the KT-NCC IP address.
- Ensure that the UDP protocol is selected.

Communication Timing

A communication timing parameter can be configured for the KT-NCC in a WAN architecture. This parameter determines the communication frequency (latency period) between the EntraPass server and the KT-NCC. This parameter will be adjusted based on the complexity and size of the network. For example, when the network architecture is simple, a communication timing will be set to faster. On the other hand, when the network architecture is large and complex a slower communication timing will be more appropriate. It is important for the communication timing to be well configured in order to avoid communication breakdowns.

The following table contains the parameters that will be defined in EntraPass Global Edition Software.

Table 5 KT-NCC Communication Timings

Parameter	Communication timing
Very fast	Latency period: max 300 ms
Fast	Latency period: max 800 ms
Average	Latency period: max 1500 ms
Slow	Latency period: max 2500 ms
Very slow	Latency period: max 4000 ms
Extremely slow	Latency period: max 6000 ms

Once again, we suggest that you consult the Network Administrator in order to measure the complexity of the network architecture where you will install the KT-NCC.

Resetting the KT-NCC

For maintenance purposes, the KT-NCC may need to be reset. Three types of resets can be performed on the system: Soft reset, hard reset and factory reset.

Please refer to Figure 25 on Page 37 to locate the different components of the KT-NCC board required to perform system resets.

Table 6 KT-NCC Reset Types

Reset Type	Instructions
Soft Reset.	A soft reset will only re-initialize statuses. 1. Press the Reset button.
Hard Reset	A hard reset will reset the KT-NCC to it's default values but will keep the IP address intact. 1. Use the needlenose pliers to remove jumper JP2. 2. Press the Reset button. 3. You must wait until the LED starts to flash again (approximately 15 seconds) before you put jumper JP2 back in place.
Factory Reset	We strongly suggest that you call Kantech Technical Support before performing a factory reset on your system. A factory reset will clear all KT-NCC configuration including the IP address. 1. Use the needlenose pliers to remove jumpers JP2 and JP3. 2. Press the Reset button. 3. Put jumpers JP2 and JP3 back in place.

Connect the KT-NCC to the Network

The KT-NCC communicates with the EntraPass Server via a10/100 Base-T Ethernet link.
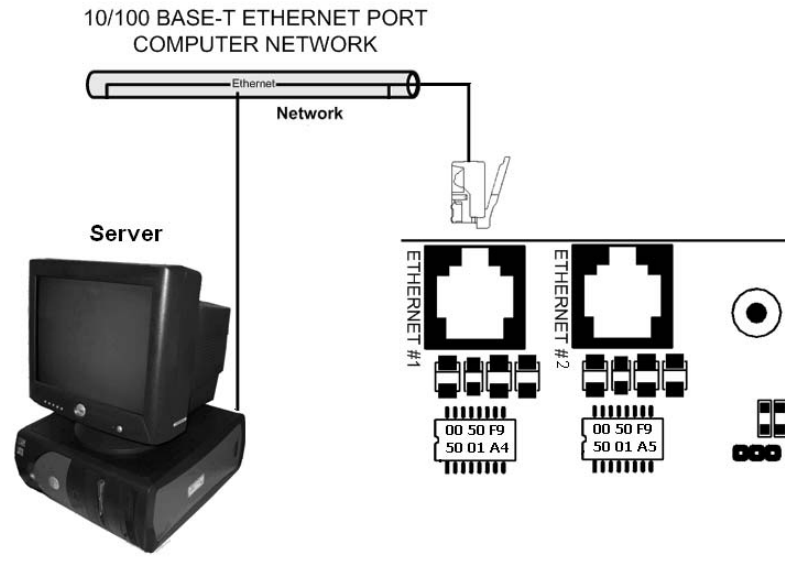
Figure 9. Ethernet #1 Connection to KT-NCC

1. Connect the cable from the KT-NCC to the network hosting the server application. Refer to Figure 9 on Page 20 above.

   - When connecting the KT-NCC to the network computer, connect the cable in the Ethernet #1 to the server.
   - When configuring the KT-NCC on the Web, connect the cable from the KT-NCC Ethernet #2 port to the computer.
   - If your KT-NCC controller is connected directly to the computer where you will be doing the Web configuration, you must use a crossover cable to connect the Ethernet #2 port to the workstation.
   - If a switch or a router is used to communicate between the KT-NCC and the workstation where you will be doing the Web configuration, you must use a patch cable to connect the Ethernet #2 port to the network.

Attention: If you are configuring your network to use a static IP address, DO NOT connect the network cable in the Ethernet Port #1 until indicated in the instructions further down.

Registering Your KT-NCC in EntraPass Global Edition

Before you go any further, you must register your KT-NCC in EntraPass Global Edition.

1. Make sure that your EntraPass server application is running at all time.
2. Start the EntraPass Global Edition Workstation application.
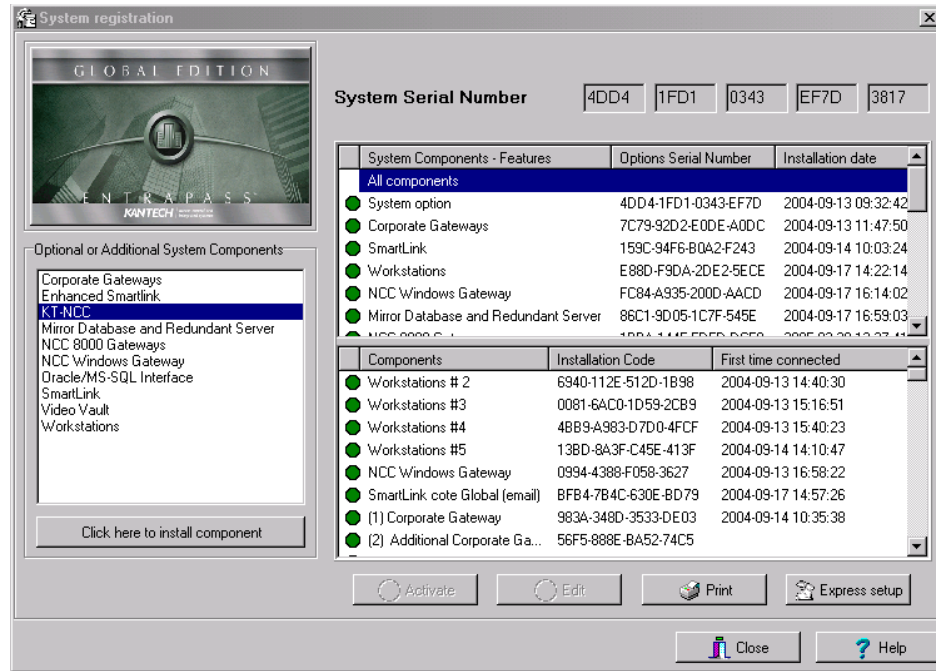3. Under the Options tab, click System Registration.

Figure 10 System Registration Dialog

4. In the Optional and Additional System Components area, highlight KT-NCC.
5. Click here to install component. The list on the right hand side of the window will refresh to display the new KT-NCC identified with a blue dot.
6. Select the KT-NCC device. The Activate button will be enabled.
7. Click Activate to register the KT-NCC in EntraPass Global Edition.
   • The indicator turns green and the new controller is added to the list above
   • The Edit button becomes enabled so that you can configure the security options
8. Close the System registration window.

   Note: At this stage, the system checks if the version numbers of the software and the controller are the same. If not, the system will automatically update the KT-NCC firmware. Three messages will appear on the EntraPass workstation list of messages to indicate that the update has been completed.
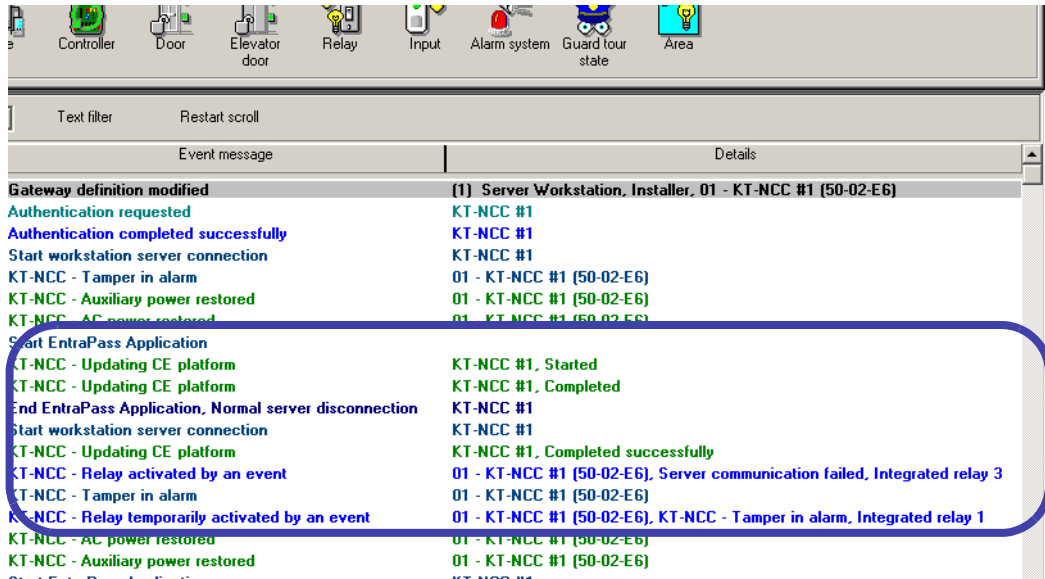
Figure 11 EntraPass Message List Desktop

The messages to lookout for are:

- KT-NCC Update of platform CE - KT-NCC, Started
- KT-NCC Update of platform CE - KT-NCC, Completed
- KT-NCC Update of platform CE - KT-NCC, Completed successfully.

Configuring DHCP with Enterprise Server IP Address

The Enterprise DHCP server will assign IP addresses automatically for communication with the KT-NCC controller(s). We strongly suggest that you use a reserved IP address for the KT-NCC MAC address.

Configure the Gateway

1. In the EntraPass Workstation main window, move to the Devices tab and click Gateway to open the corresponding dialog.
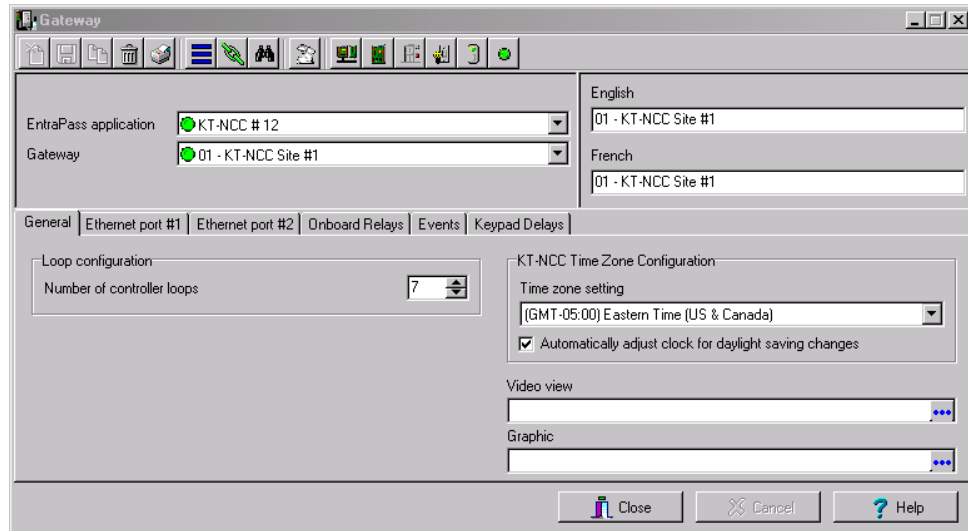
Figure 12 Gateway Dialog - General Tab DHCP Enterprise

2. Click the down arrow next to the text box marked Gateway and scroll down the selection of gateways until you reach the KT-NCC gateway you have just saved. The KT-NCC gateway will appear along with a number on the right-hand side of the dialog.

   • You can rename the KT-NCC gateway in the French and English fields.

3. Click the General tab.

4. Select the Number of controller loops in the text box under Loop Configuration. The KT-NCC can physically support 7 controller loops.

5. In the KT-NCC Time Zone configuration area, you must select the appropriate Time zone setting.

Note: It is advisable to check with the Network Administrator if the site where you are installing the KT-NCC is situated in an area where daylight saving time is in effect.

6. Check the box underneath it if you want the system to Automatically adjust the clock for daylight saving changes.

7. When applicable select the Graphic or Video View that pertains to the KT-NCC.
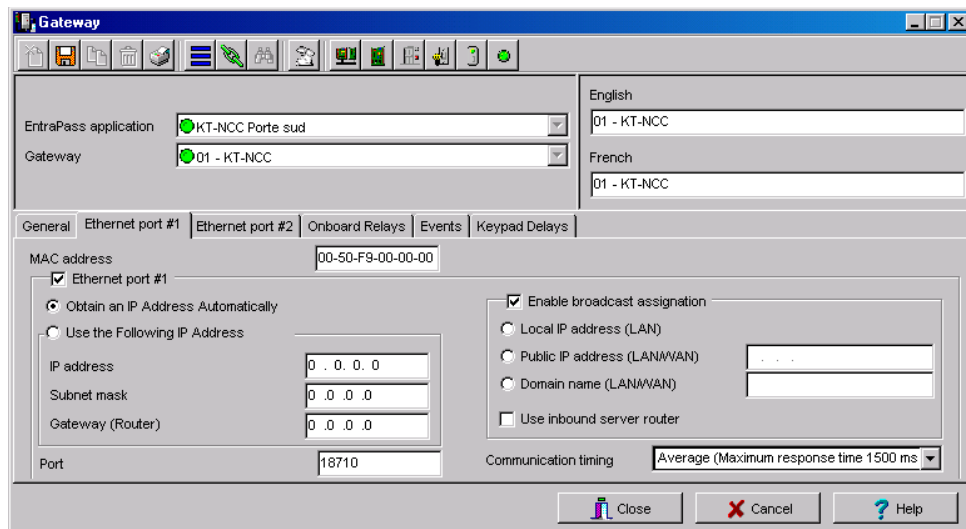
8. Move to the Ethernet #1 tab.

Figure 13. Gateway Window - Ethernet #1 Tab DHCP Enterprise

9. Enter the KT-NCC MAC address. The first 6 numbers in the MAC address (00-50-F9) cannot be modified.

   Note: The MAC address can be found on the KT-NCC board, underneath the Ethernet #1 port. It is a 12-digit hexadecimal code, with each two digits separated by a dash (i.e. xx-xx-xx-xx-xx) Refer to Figure 25 on Page 37 to locate the MAC address on the KT-NCC board.

10. Select the Obtain an IP address automatically option.

11. Port 18710 is automatically assigned to the KT-NCC by default. It is advisable not to modify it.

12. By default, the Enable broadcast assignation box is checked. Leave it to default.

13. Click the Save icon.

14. To verify if the server is communicating with the KT-NCC, you can monitor the incoming messages in the Desktop Message list. (It may take a few minutes between saving the configuration to the first message broadcast to the server.) Or, you can check the connection status in the Connection List (See instructions on page 35).

15. If you have more than one KT-NCC gateway, configure them all at this time.

Configuring DHCP with EntraPass Server IP Address

In this setup, the EntraPass DHCP server will automatically assign IP addresses for communication with the KT-NCC controller(s).

Note: *In order to avoid serious network conflicts, you will use the EntraPass DHCP server only when there is no other DHCP server on the local network.*

Configure Server Parameters

1. In the EntraPass Server main window or the EntraPass Workstation main window, move to the Options tab.
2. Click Server Parameters to open the corresponding dialog.
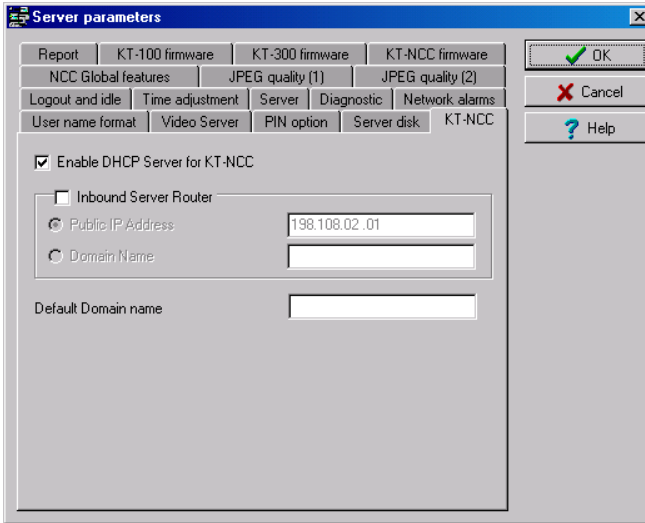
Figure 14 Server Parameters Dialog DHCP EntraPass

3. Select the KT-NCC tab.
4. Check the box labeled Enable DHCP server for KT-NCC.

   Note: This option is greyed out if you already have a DHCP server on your network.

5. Click Ok to close the dialog.
6. Restart the EntraPass Global Edition Server application.

Configure the Gateway

1. In the EntraPass Workstation main window, move to the Devices tab and click Gateway.
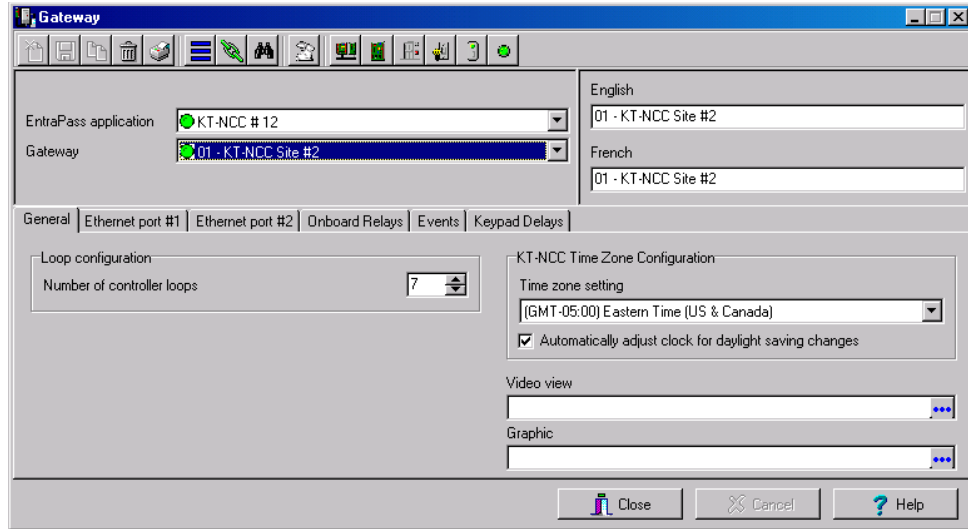
Figure 15 Gateway Dialog - General Tab DHCP EntraPass

2. Click the down arrow next to the text box marked Gateway and scroll down the selection of gateways until you reach the KT-NCC gateway you have just saved. The KT-NCC gateway will appear along with a number on the right-hand side of the dialog.
   • You can rename the KT-NCC gateway in the French and English fields.

3. Click the General tab.

4. Select the Number of controller loops in the text box under Loop Configuration. The KT-NCC can physically support 7 controller loops.

5. In the KT-NCC Time Zone configuration area, you must select the appropriate Time zone setting.

Note: It is advisable to check with the Network Administrator if the site where you are installing the KT-NCC is situated in an area where daylight saving time is in effect.

6. Check the box underneath it if you want the system to Automatically adjust the clock for daylight saving changes.

7. When applicable select the Graphic or Video View that pertains to the KT-NCC.

8. Move to the Ethernet #1 tab. The section Use the Following IP Address will be empty.
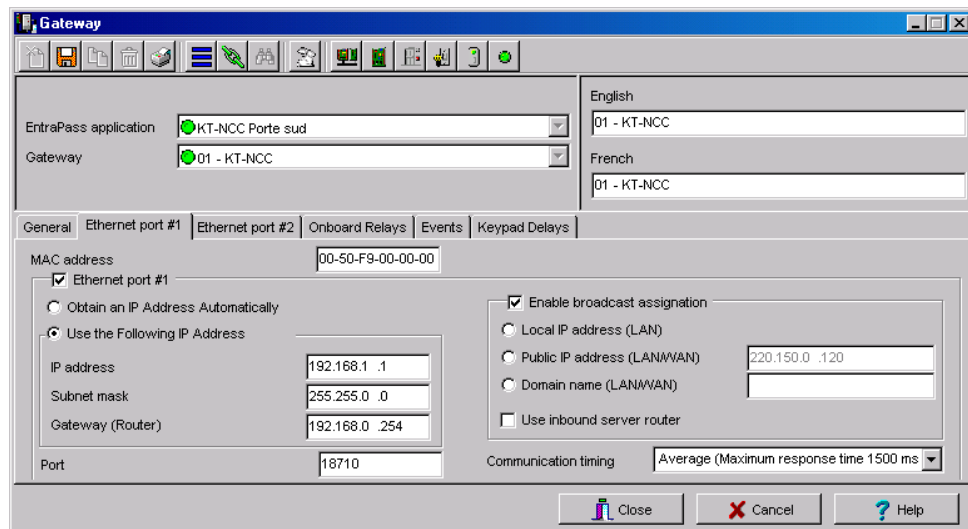

Figure 16. Gateway Dialog - Ethernet #1 Tab - DHCP EntraPass

9. Enter the KT-NCC MAC address. The first 6 numbers in the MAC address (00-50-F9) cannot be modified.

    Note: The MAC address can be found on the KT-NCC board, underneath the Ethernet #1 port. It is a 12-digit hexadecimal code, with each two digits separated by a dash (i.e. xx-xx-xx-xx-xx) Refer to Figure 25 on Page 37 to locate the MAC address on the KT-NCC board.

10. Check the Ethernet port #1 box.

11. Check the Use the Following IP Address option.

12. Enter the KT-NCC IP Address and the Subnet mask. The addresses should have been provided by the System Administrator. Make sure that the IP address is unique and belongs to the same segment than the KT-NCC segment (for example: 192.168.0.X, X being the number that differs from the KT-NCC IP address). Make sure that the subnet mask is the same as the Entrapass Global Edition server.

13. Port 18710 is automatically assigned to the KT-NCC by default. It is advisable not to modify it.

14. The box Enable broadcast assignation is selected by default. Leave this option as is.

15. Click the Save icon.

16. Close the Gateway dialog.

17. Check the connection status (See instructions on page 35).

18. If you have more than one KT-NCC gateway, configure them all at this time.

Configuring Static IP Addresses

Communication between the EntraPass Global server and the KT-NCC controller(s) will be done through a static address. These addresses will be configured using the KT-NCC Web Configuration tool for communication between the EntraPass server and the KT-NCC controller(s).

The System Administrator should provide you with the static IP address. This address must be within the same segment as the KT-NCC default IP address. You will always use the default IP address on Port #2 when setting up your KT-NCC with the KT-NCC Web Configuration tool. It is advisable to use the address 192.168.0.5 and the subnet mask 255.255.255.0.

Note: NEVER use the address 192.168.0.2 to configure the IP address of the PC. This address is assigned by default to Ethernet port #2 of the KT-NCC.

Warning: Make sure that your network cable is NOT connected to the Ethernet Port #1

KT-NCC Web Configuration

1. Start Internet Explorer.
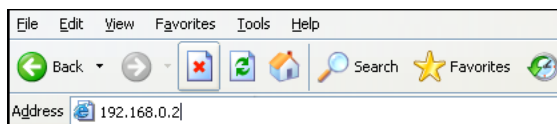
Figure 17 IP Address location

2. Enter the default IP Address of your KT-NCC in the Address field. (192.168.0.2), and press Enter on your keyboard. The KT-NCC Web Configuration window will open.
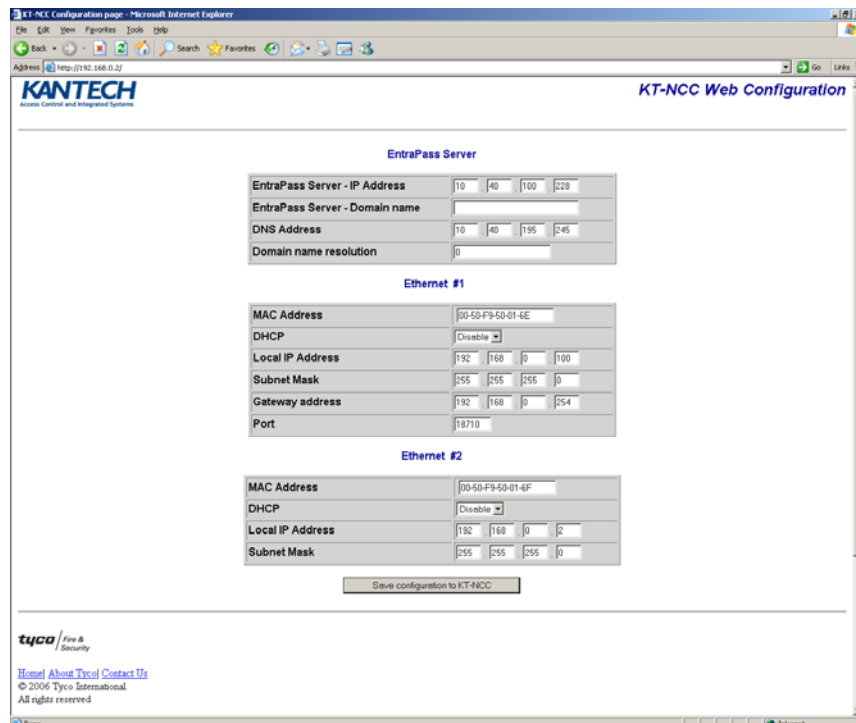

Figure 18 KT-NCC Web Configuration Window

3. In the EntraPass Server section, enter the EntraPass Server IP Address.

4. In the Ethernet #1 section:
   - The MAC Address of the KT-NCC is already configured. The MAC address is found on the top right of the KT-NCC circuit, under Ethernet Port #1, see Figure 25 on Page 37.
   - Ensure that the DHCP parameter is Disabled.

- Enter the IP address of the KT-NCC that you received from the Network Administrator.
- Enter the KT-NCC Subnet Mask 255.255.255.0.
- The Port number is already configured. It is advisable to always use the default value 18710.

5. The fields in the Ethernet #2 section are already configured. You do not have to change these parameters.

6. Click Save Configuration to KT-NCC. A message showing that the configuration is saved and that the KT-NCC is reinitializing will appear on the screen.
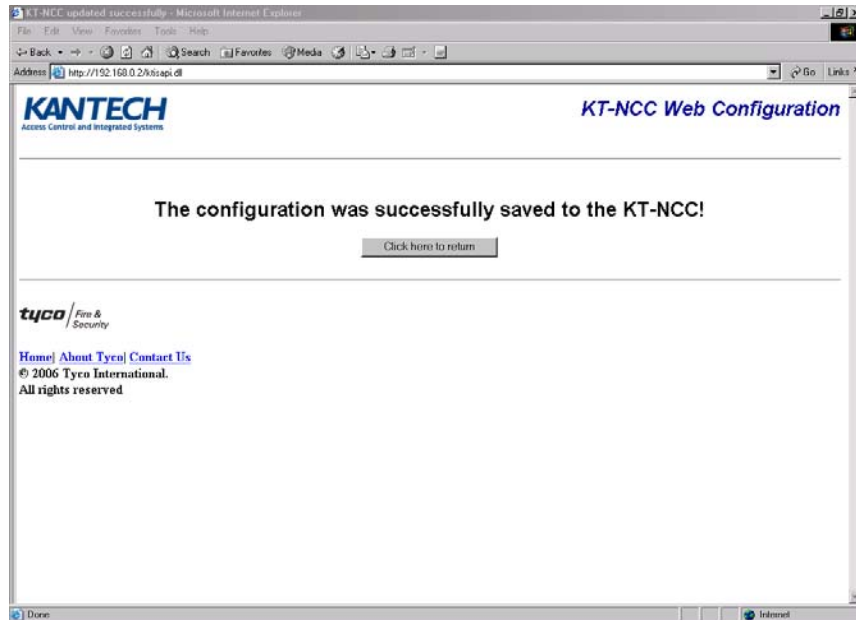

Figure 19 Save Configuration Web Page

7. Click on Click here to return. The screen will return to the KT-NCC Web Configuration tool main window. Meanwhile, the KT-NCC will reset.
- The blue pilot light (Vital LED) of the KT-NCC will blink quickly to signal that the controller is in reset mode.
- The blue pilot light (Vital LED) of the KT-NCC will remain lit for 15 seconds to signal that the controller is in startup mode.
- The blue pilot light (Vital LED) of the KT-NCC will blink 4 times to signal that the controller has reset but it is not yet registered on the EntraPass server. (Hard reset mode.)

Note: For details, refer to Hearbeat / Vital LED Patterns on Table 7 on Page 41.

8. Close the KT-NCC Web Configuration window. Once the KT-NCC is registered on the server, you will no longer be able to access the Web Configuration Page.

9. Disconnect the cable of Ethernet port #2.

10. Connect the network cable on Ethernet port #1.

11. Register the KT-NCC in EntraPass Global Edition software (See instructions on page 21).

1. In EntraPass Global Edition Workstation main window, move to the Devices tab and click Gateway.
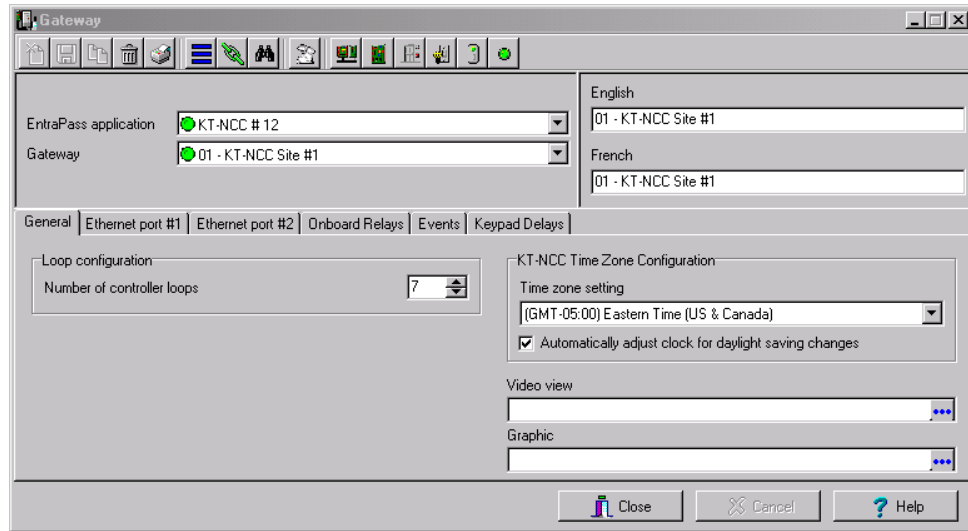

Figure 20 Gateway Dialog - General Tab Static IP Address

2. Click the down arrow next to the text box marked Gateway and scroll down the selection of gateways until you reach the KT-NCC gateway you have just saved. The KT-NCC gateway will appear along with a number on the right-hand side of the dialog.

   • You can rename the KT-NCC gateway in the French and English fields.

3. Click the General tab.

4. Select the Number of controller loops in the text box under Loop Configuration. The KT-NCC can physically support 7 controller loops.

5. In the KT-NCC Time Zone configuration area, you must select the appropriate Time zone setting.

Note: It is advisable to check with the Network Administrator if the site where you are installing the KT-NCC is situated in an area where daylight saving time is in effect.

6. Check the box underneath it if you want the system to Automatically adjust the clock for daylight saving changes.

7. When applicable select the Graphic or Video View that pertains to the KT-NCC.
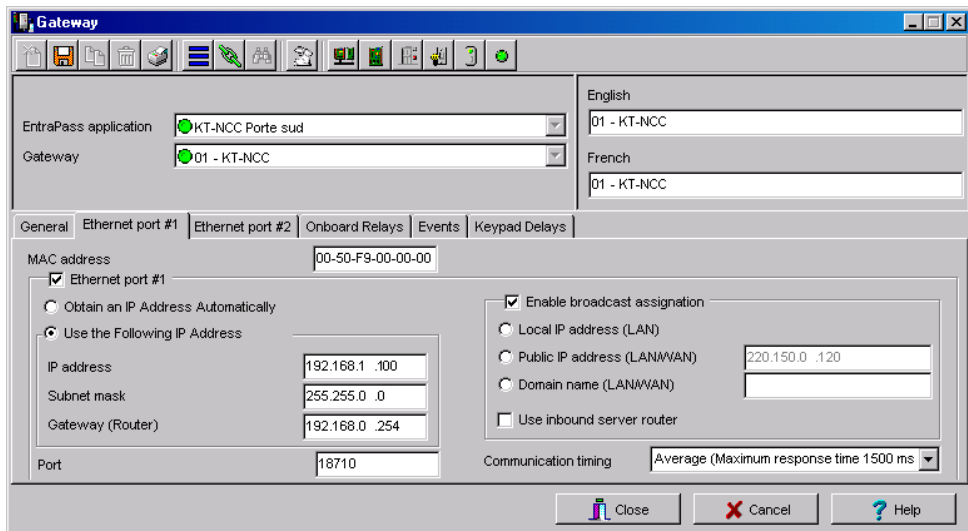
8. Move to the Ethernet #1 tab.

Figure 21. Gateway Window - Ethernet #1 Tab Static IP Address

9. Enter the KT-NCC MAC address. The first 6 numbers in the MAC address (00-50-F9) cannot be modified.

   Note: The MAC address can be found on the KT-NCC board, underneath the Ethernet #1 port. It is a 12-digit hexadecimal code, with each two digits separated by a dash (i.e. xx-xx-xx-xx-xx) Refer to Figure 25 on Page 37 to locate the MAC address on the KT-NCC board.

10. Check the box Ethernet port #1.

11. Check the Use the Following IP Address option.
    • Select the option Use the Following IP Address.
    • Enter the IP address of the KT-NCC.
    • Enter the Subnet mask address.
    • When necessary, enter the KT-NCC Gateway address that the Network Administrator provided you.
    • Port 18710 is automatically assigned to the KT-NCC by default. It is advisable not to modify it.
    • The case Enable broadcast assignation is selected by default. Leave this option as is.

12. Click the Save icon and close the Gateway dialog.

13. Check the connection status (See instructions on page 35).

14. If you have more than one KT-NCC gateway, configure them all at this time.

Configuring a WAN Network

In this type of architecture the EntraPass Server site is distant from the KT-NCC site module and the two communicate through a public network.

After you have verified the port forwarding configuration with the Network Administration, connected the KT-NCC to the EntraPass network and registered the KT-NCC to EntraPass Global Edition Server, you will configure the server parameters.

Configure Server Parameters

1. In the EntraPass Global Edition - Server application, click the Server Parameters icon under the Options tab to open the Server parameters window.
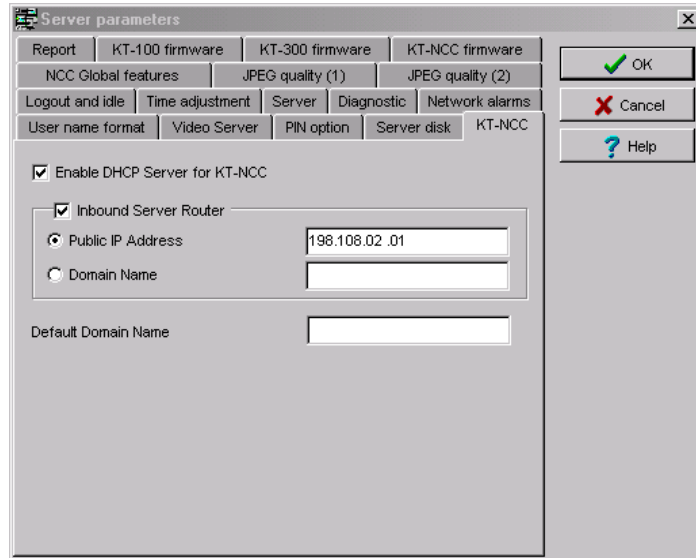
Figure 22 Server Parameters Dialog WAN

2. Select the KT-NCC tab.
3. Check the Inbound Server Router box.
4. Select the Public IP Address box.
5. Enter the Public IP Address #1 of inbound router or the Domain Name. This address is assigned by the public network provider to whom you are connected.
6. Click OK to save the configuration and close the dialog.

Configuring the Gateway

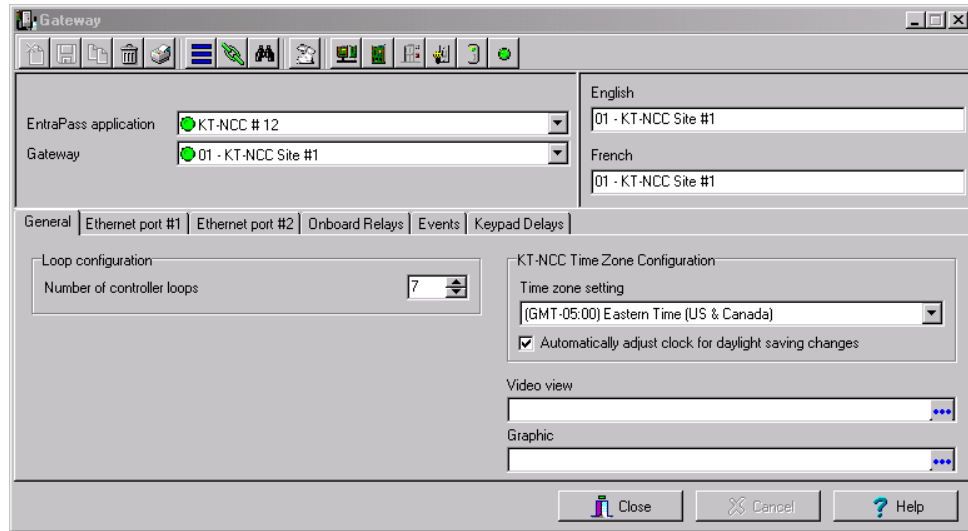1. In EntraPass Global Edition Workstation main window, move to the Devices tab and click Gateway.

Figure 23 Gateway Dialog - General Tab - WAN

2. Click the down arrow next to the text box marked Gateway and scroll down the selection of gateways until you reach the KT-NCC gateway you have just saved. The KT-NCC gateway will appear along with a number on the right-hand side of the dialog.
   - You can rename the KT-NCC gateway in the French and English fields.
3. Click the General tab.
4. Select the Number of controller loops in the text box under Loop Configuration. The KT-NCC can physically support 7 controller loops.
5. In the KT-NCC Time Zone configuration area, you must select the appropriate Time zone setting.

Note: It is advisable to check with the Network Administrator if the site where you are installing the KT-NCC is situated in an area where daylight saving time is in effect.

6. Check the box underneath it if you want the system to Automatically adjust the clock for daylight saving changes.
7. When applicable, select the Graphic or Video View that pertains to the KT-NCC.
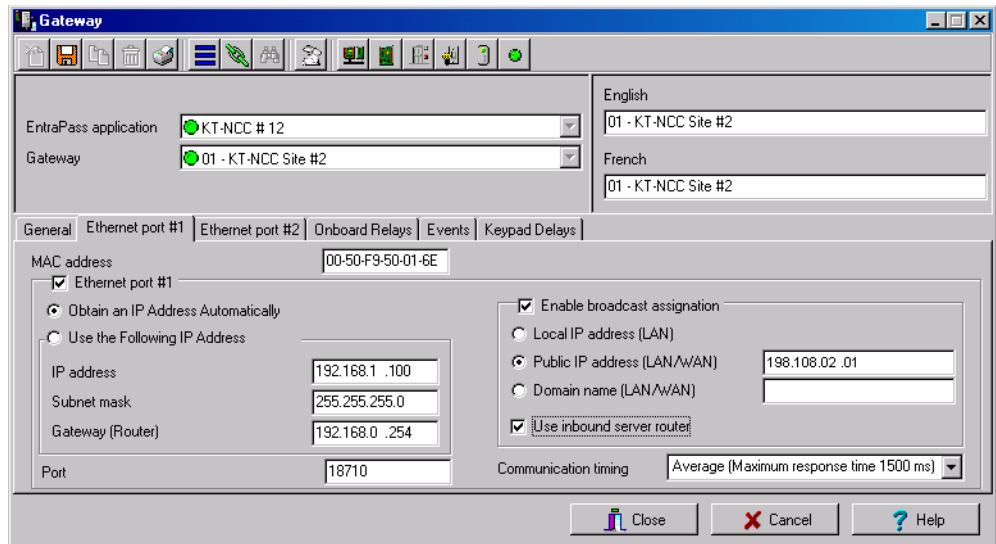8. Move to the Ethernet #1 tab.

Figure 24. Gateway Window - Ethernet #1 Tab WAN

9. Enter the KT-NCC MAC address.

10. Check the Ethernet port #1 box.

11. Select the Obtain an IP Address Automatically option.

12. Port 18710 is automatically assigned to KT-NCC by default. It is advisable not to modify it. However, if you have to configure several KT-NCCs, ensure that every KT-NCC has a unique port number. This is necessary when forwarding ports to an IP address.

13. The Enable broadcast assignation box is selected by default.

14. Select the Public IP address (LAN/WAN) option and enter the IP address.

15. Check the Use inbound server router option.

16. Select the appropriate Communication timing (Consult Table 5 on Page 18).

17. Click the save icon.

18. Close the Gateway dialog.

19. Check the connection status (See instructions on page 35).

20. If you have more than one KT-NCC gateway, configure them all at this time.

Connection Status

The EntraPass Global Edition server application gives you access to a Connection list where you can monitor the controller's status at all time, but mostly right after you will have configured the gateway.

1. In the application EntraPass Global Edition - Server, click the Connection tab.

2. Check the connection status of the KT-NCC that you just saved.
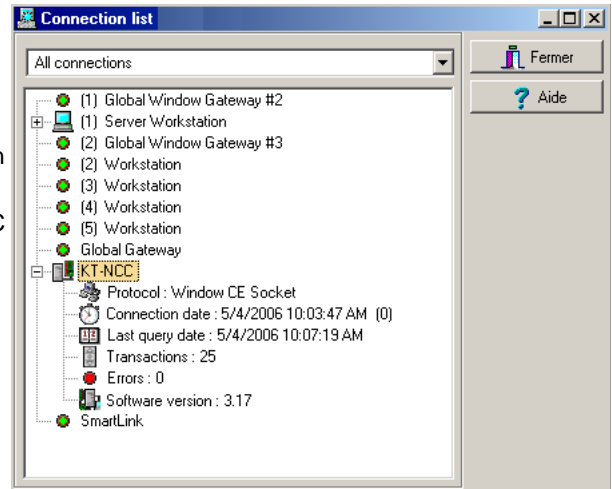
Upgrading Firmware

After installing a new version of EntraPass Global Edition software, and starting the application, the system will automatically verify that both software and hardware versions are similar. If this is not the case, the system will perform an update automatically. An event will be displayed in the Desktop Message list to indicate the progress of the upgrade.

Warning: Make sure that the AC Power and onboard battery remain connected during the firmware upgrade and until EntraPass sends a message that the firmware has been successfully reloaded.
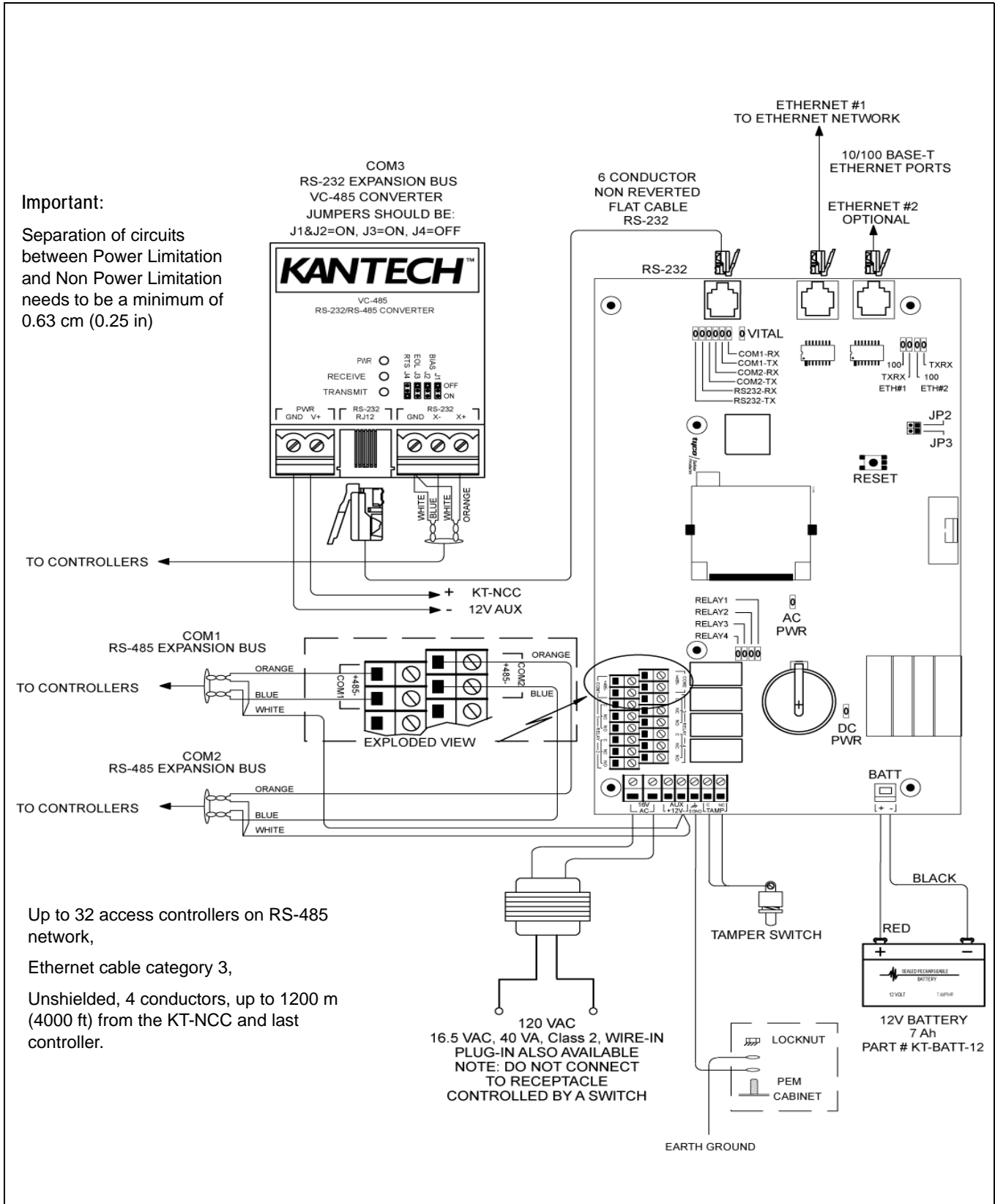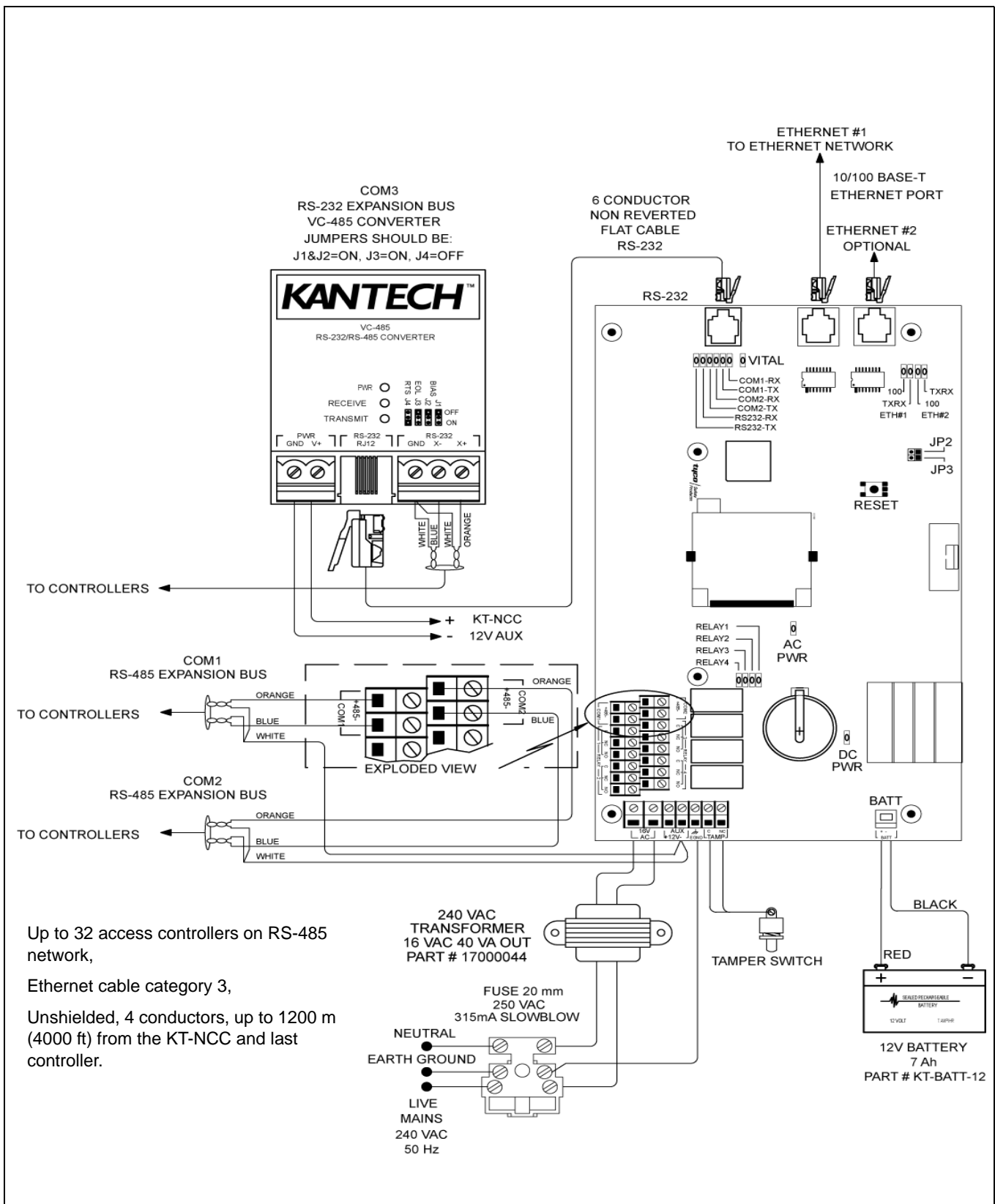
RS-232
COM3

HEARTBEAT/
VITAL LED

ETHERNET #1

ETHERNET
LEDS

ETHERNET #2

MAC ADDRESS
LOCATION

00 50 F9
50 01 A4

00 50 F9
50 01 A5

JP2-JP3

RESET

RS-485
(COM 1 & 2)

RELAYS (1 - 4)

LITHIUM ION
BATTERY

AC
POWER

AUX POWER

EARTH GROUND

TAMPER SWITCH

BATTERY CONNECTOR
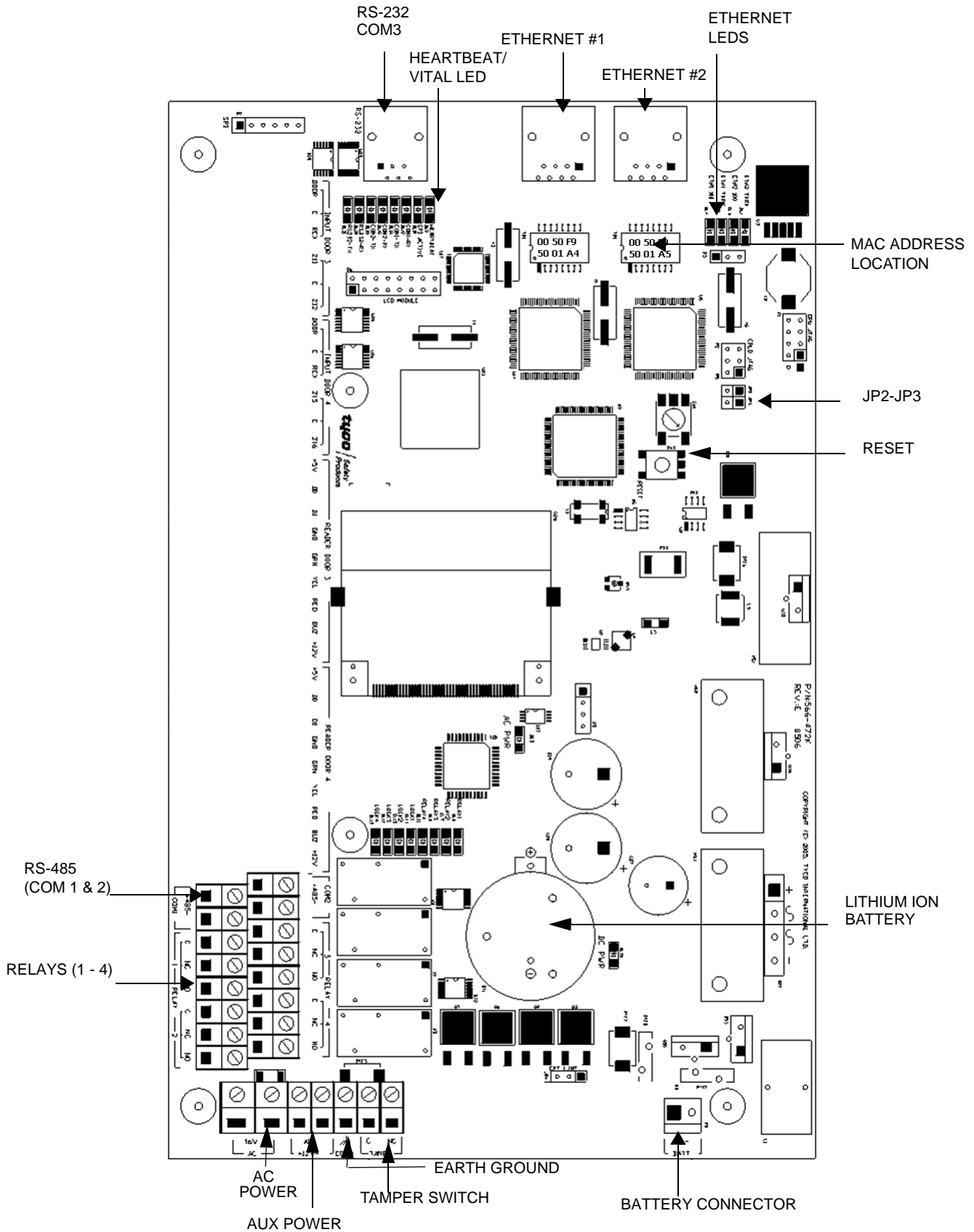
Figure 25 KT-NCC Printed Circuit Board

Important:

Separation of circuits between Power Limitation and Non Power Limitation needs to be a minimum of 0.63 cm (0.25 in)

Up to 32 access controllers on RS-485 network,

Ethernet cable category 3,

Unshielded, 4 conductors, up to 1200 m (4000 ft) from the KT-NCC and last controller.

Figure 26. KT-NCC Wiring Diagram for North America

Up to 32 access controllers on RS-485 network,

Ethernet cable category 3,

Unshielded, 4 conductors, up to 1200 m (4000 ft) from the KT-NCC and last controller.
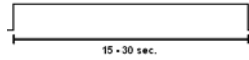
Figure 27: KT-NCC Wiring Diagram for Europe and Asia
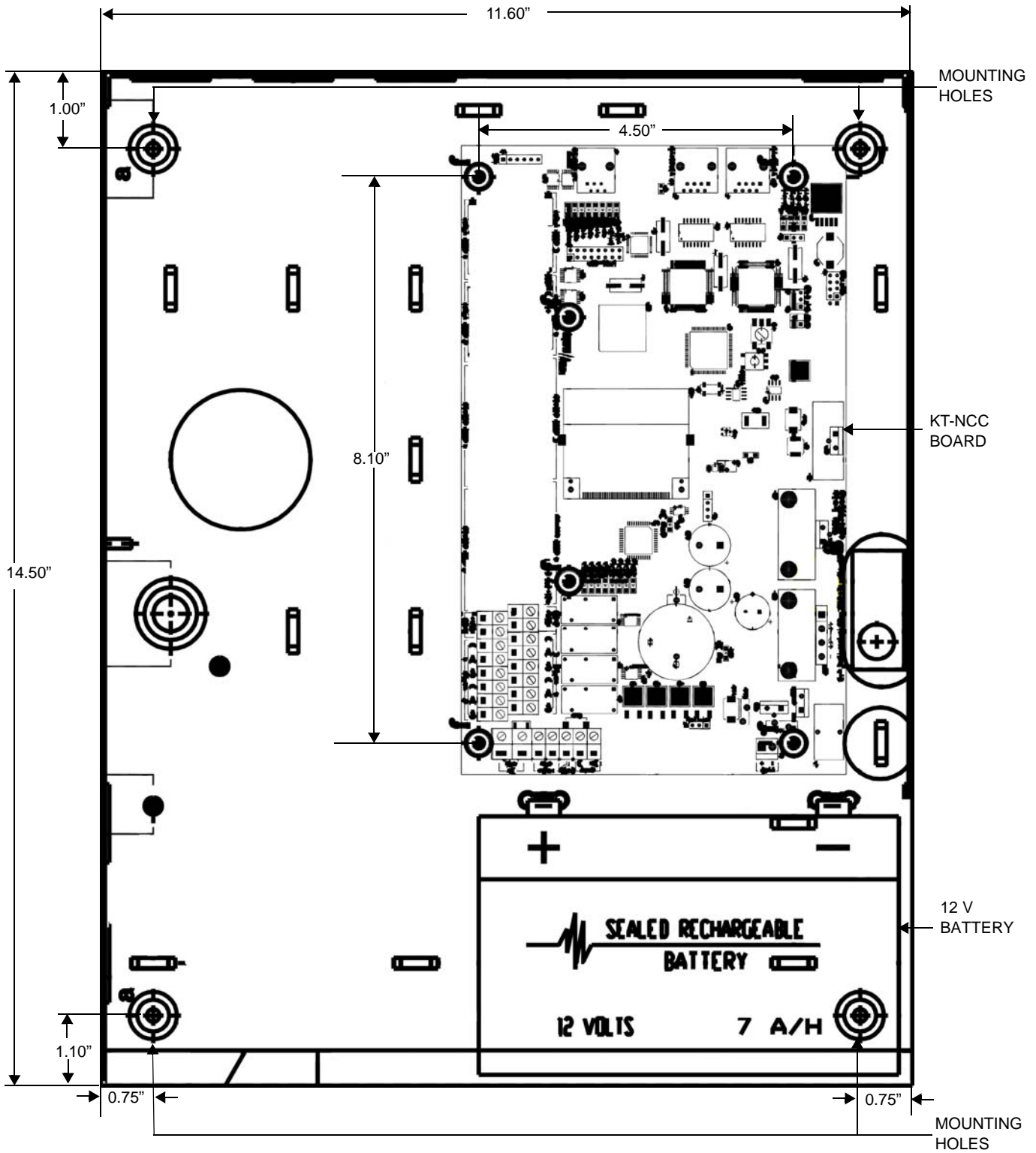
Figure 28. KT-NCC PCB Mounted in Cabinet with Battery

Table 7 Hearbeat / Vital LED Patterns

Pulses	Description	Patterns
1 flash/sec	KT-NCC is communicating with the server.	 1 sec.
Fast flashes	KT-NCC is no longer communicating with the server.	 4 pulses / sec
Steady on (15-30 sec)	KT-NCC is starting up.	 15 - 30 sec.
Quick flashes (May last from 15-30 sec)	Preparing to reboot. DO NOT POWER DOWN OR RESET DURING THIS PROCESS.	 10 pulses / sec
Quick flashes (May last up to 90 sec.)	Firmware update. DO NOT POWER DOWN OR RESET DURING THIS PROCESS.	 5 pulses / sec.
1 long flash/sec	KT-NCC is in factory reset mode.	 1 sec.
4 flashes on per sec and 1 sec steady off	KT-NCC is in hard reset mode.	 1 sec.

KT-NCC Network Communications Controller

Configuration Information Sheet

Company Name:_____Site Name:_____

KT-NCC Controller Name: _____

Serial No.:_____

MAC Address #1:_____

IP Address #1:_____

IP Address is: ___Static   ___DHCP

MAC Address #2:_____

IP Address #2:_____

IP Address is: ___Static   ___DHCP (Reserved address recommended)

RS-485 Loop #1 Name:_____

RS-485 Loop #2 Name:_____

RS-232 Loop #3 Name:_____

IP Loop #4 Name:_____

IP Loop #5 Name:_____

IP Loop #6 Name:_____

IP Loop #7 Name:_____

Relay #1:_____

Relay #2:_____

Relay #3:_____

Relay #4:_____