

# Secure Ethernet Gateway (SEG-1) for IEI Access Systems

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Questions can also be submitted through our website, [www.ieib.com](http://www.ieib.com)

**Technical Support - End User**

Contact your Installer/Service company.

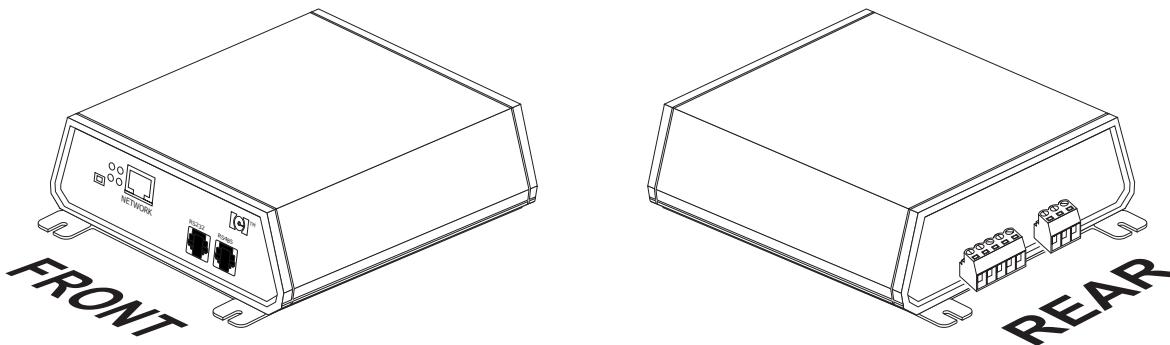
## Installation Manual

### 1. INTRODUCTION

The SEG-1 is a LAN/WAN (TCP/IP to serial) interface that enables existing or new IEI access systems to use the end user's network infrastructure and to be programmed and managed at any network PC running Hub Manager™ Professional software (purchased separately: part number HUBSWR - specify version 5 or higher).

Hub Manager Professional Version 5 will operate on Windows XP Professional as well as Windows 98 and 2000 operating systems.

The access system data sent over the corporate network is 128-Bit so that user and door information cannot be "sniffed" and security compromised.



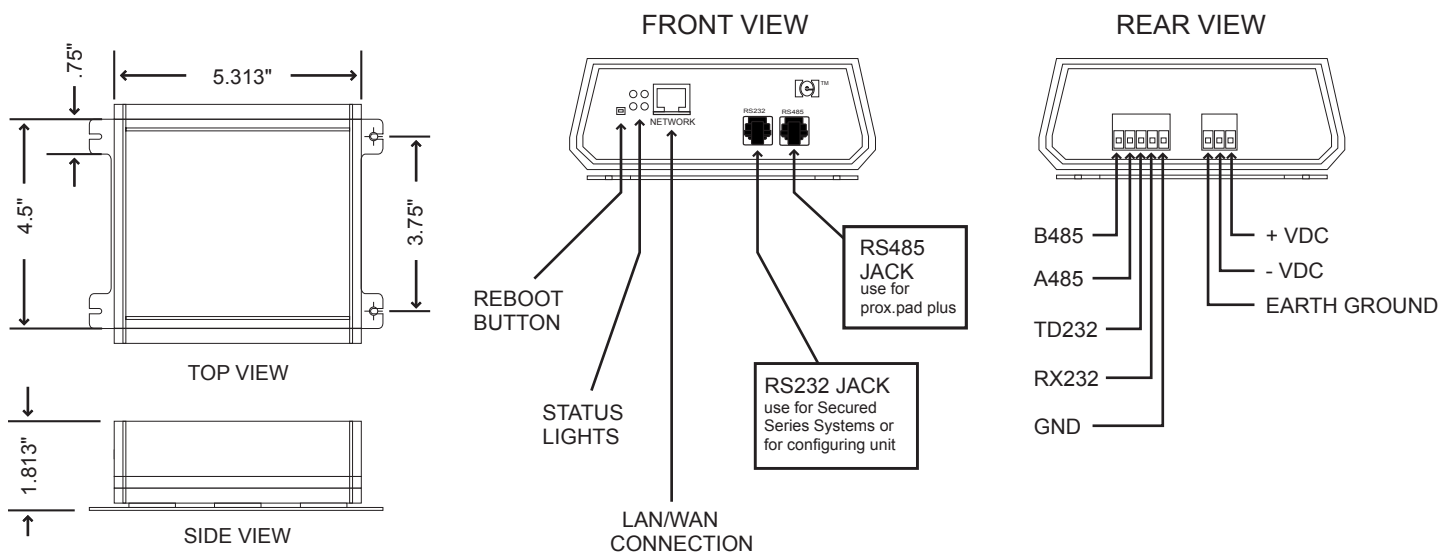
**IMPORTANT NOTE:**

To set up the SEG-1, installation technicians must have a technical knowledge of networks and networking in a PC environment. It is important to consult the end user's system administrator in order to resolve any networking issues that may occur.

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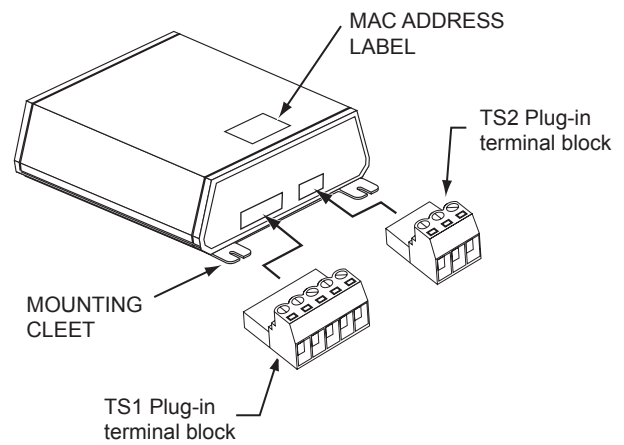
## 2. PRODUCT OVERVIEW



SEG-1 LEDS	
SEND/RECEIVE DATA (GREEN)	NETWORK LINK (GREEN)
STATUS (RED)	DIAGNOSTICS (AMBER)

<p><b>Data Send/Receive (TOP LEFT)</b>  <b>Solid = Idle</b>                      Flashing = Receiving data from Hub Manager Pro and it is being properly decrypted</p>	<p><b>Network Link (TOP RIGHT)</b>  <b>Solid = Good Link to network</b>                      Off = no network link</p>
<p><b>Status (BOTTOM LEFT)</b>  <b>Solid = with Top Left blinking</b>                      1x: EPROM checksum error                      2x: RAM error                      3x: Network controller error                      4x: EEPROM checksum error                      5x: Duplicated IP address on the network                      6x: Software does not match hardware</p> <p><b>flashing = with Top Left blinking</b>                      4x: Faulty network connection                      5x: No DHCP response received</p>	<p><b>Diagnostics (BOTTOM RIGHT)</b>                      Flashing Alternately with Bottom Left =                      Module is in setup mode</p>



PARTS LIST	PRODUCT SPECIFICATIONS
<p>SEG-1 UNIT (with mounting plate attached)</p> <p>MODULAR CORD 6 feet in length Four Conductor Straight-Through Connections</p> <p>SECURITY CHIP</p> <p>DB-9 to RJ11 CONFIG CONNECTOR</p> <p>TS2 TS1 PLUG-IN TERMINAL BLOCKS</p>	<p>Voltage: 12VDC (9V min. to 20VDC max.)                      Current Draw: 150 MA @ 9V 100 MA @ 20V                      Environmental: 0-70C (32 - 158F) , 0-95% RH Non-condensing,  <b>INDOOR INSTALLATION ONLY</b></p> <hr/> <p>Used with: IEI Hub Systems (RS232), prox.pad plus (RS485)</p> <hr/> <p>Software Requirements: Hub Manager Professional 5 (or later rev.)</p> <hr/> <p>IP Address: Assigned by authorized network administrator, the SEG-1's IP address must not change and may be either a static address or dynamically served address with a lease that does not expire.</p>

### 3. SETTING UP THE SEG-1 CONNECTION

The SEG-1 is a device created for the purpose of allowing data to be exported over a LAN/WAN to IEI RS232 or RS485 Controllers. A minimal amount of setup must be performed on the SEG-1 in order for it to be properly addressed on the LAN/WAN.

- In order to use the SEG-1, it must be assigned an IP Address that does not change.
  - This IP address may be either a static address or a dynamically served address with a lease that does not expire.
- Each SEG-1 shipped from the factory is shipped with an IP Address of 0.0.0.0.
  - This particular IP address tells the SEG-1 that it should look for a DHCP server and be assigned a dynamic address when it is powered up or rebooted.
- If you are not dynamically assigning the IP address using DHCP, you need to configure the static IP address of the SEG-1 using the serial connection of the SEG-1 (labeled RS232 on the SEG-1).

Options to configure/set the IP address of the SEG-1:

#### **STATIC IP ADDRESS**

Through the serial port of the SEG-1 using the PC's comm port.

This method allows you to configure the IP address of the SEG-1 without any network devices such as a router or a network switch interfering. Refer to the section in this manual named **'Setting Up the SEG-1 through a serial connection (via PC com port)'** on page 5.

#### **DYNAMIC IP ADDRESS**

Configuring the DHCP server to assign an IP address with a 'non-expiring lease' to a particular MAC address that is requesting to be served an IP address. Refer to the section in this manual named **'Setting up the SEG-1 to be assigned a Dynamic IP Address with a non-expiring lease (via LAN)'** on page 7.

#### **NOTE:**

For security reasons, in order to modify the SEG-1's settings after it is set up, it must be removed from the LAN/WAN and brought back to the PC and directly connected to your PC's comm port. You must then refer to the section of this manual named **'Setting Up the SEG-1 through a serial connection (via PC com port)'** on page 5.

You will then enter the configuration menu through the serial connection.

This process is required so that not just anyone on the LAN/WAN can change the settings of the SEG-1 and potentially breach the security of your access control system.

# SETTING UP THE SEG-1 THROUGH A SERIAL CONNECTION (via PC com port)

This is the recommended method for configuring the IP address of the SEG-1 if it is going to be assigned a static IP address.

**To enter the configuration menu of the Gateway, you must perform the following in order:**

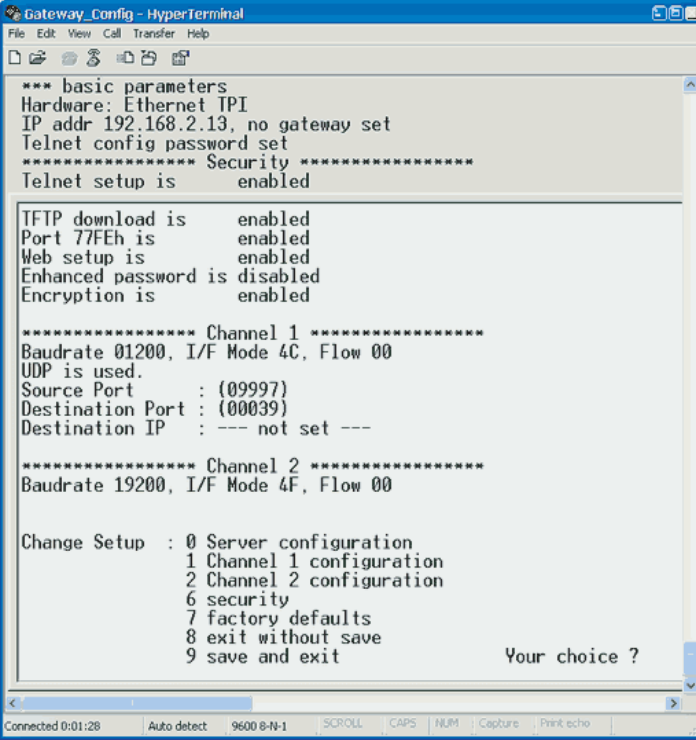
1. Disconnect the SEG-1 from the LAN and controller and bring it back to the PC, along with its power supply.
2. Connect the DB9-RJ11 adapter labeled 'Gateway Config' (supplied with the SEG-1) to your PC's com port.
3. Plug the 6' modular cord (supplied with the SEG-1) into the 'Gateway Config' adapter.
4. Plug the other end of the 6' modular cord into the port on the SEG-1 labeled 'RS232'.
5. Now run the Gateway\_Config.ht shortcut from the Hub Manager Pro 5 Program folder Start | Programs | Hub Manager Pro 5 | Gateway\_Config.ht.

**NOTE:** If Com Port 1 is not available on your PC, then you may need to change the properties of this HyperTerminal session to use another Com Port. To change the com port setting, open Windows Explorer, browse to C:\Program Files\IEI\HubManagerPro5\Program, then right click on the file named Gateway\_Config.ht, Left-Click on Properties, select the tab named Connect To, then select the correct com port in the field named Connect Using, select Apply and relaunch the HyperTerminal Shortcut

6. Disconnect power to the SEG-1 (if it was powered up).
7. Hold down the x key (lowercase) on PC keyboard while Gateway\_Config.ht program is running.
8. Power up the SEG-1.
9. In a few seconds you should get a response from the SEG-1 asking you to press enter to go into Setup Mode.
10. Release the x key (lowercase).
11. Press enter within 5 seconds to enter Setup mode.  
Failure to press enter within this window of opportunity will cause the SEG-1 to stop the ability to enter setup mode, and you will see '?!?' displayed on the screen. If this happens go back to step 7 and start from there again.

```
*** Lantronix Demo Server ***
Serial Number 6254589  MAC address 00:20:4A:62:D5:3D
Software version V05.0 (030813)
Press Enter to go into Setup Mode
?!?_
```

12. After pressing **<ENTER>** to go into setup mode, you will be given a menu system displaying the current settings and also some menu items to choose from (see image below).



```
Gateway_Config - HyperTerminal
File Edit View Call Transfer Help
*** basic parameters
Hardware: Ethernet TPI
IP addr 192.168.2.13, no gateway set
Telnet config password set
***** Security *****
Telnet setup is      enabled

TFTP download is    enabled
Port 77FEh is      enabled
Web setup is        enabled
Enhanced password is disabled
Encryption is       enabled

***** Channel 1 *****
Baudrate 01200, I/F Mode 4C, Flow 00
UDP is used.
Source Port      : (09997)
Destination Port : (00039)
Destination IP   : --- not set ---

***** Channel 2 *****
Baudrate 19200, I/F Mode 4F, Flow 00

Change Setup : 0 Server configuration
               1 Channel 1 configuration
               2 Channel 2 configuration
               6 security
               7 factory defaults
               8 exit without save
               9 save and exit

Your choice ?

Connected 0:01:28  Auto detect  9600 8-N-1  SCROLL  CAPS  NUM  Capture  Print echo
```

13. To change the IP address you should select option '0 server Configuration'. A 3 digit number will be displayed in brackets. This is the first 'octet' of the current IP address of this IEI SEG-1 device. You will either enter a new 3 digit number and then press enter to accept it, or you can accept this number by pressing enter. You will do this for all 4 octets.
14. A second line will appear asking to 'Set Gateway IP Address'. Leave the selection as 'N' and press **<ENTER>**.
15. You must now press **<ENTER>** for the rest of the options to accept the default settings.
16. There is no need to change any other settings within this setup menu.
17. From the main menu, select '9 save and exit'.
18. When you receive the Parameters stored ... message you can exit this utility by selecting File | Exit. You will select Yes if you are asked if you want to disconnect.

**NOTE:** Default values in all other menu systems should not be changed. The default value is kept by pressing the **<ENTER>** key when that setting is displayed.

Here is a brief description of each menu and sub option, and what the default values should be. The SEG-1 device is factory set to have the highest security possible. Changing any options, especially in the 'Security' menu could result in not having a completely secure environment.

- **0 Server Configuration :**

- IP Address : (XXX).(XXX).(XXX).(XXX) Allows you to set the IP address of the IEI SEG-1 directly. You can set it to 0.0.0.0 to allow it to be served a dynamic IP address each time it boots up. The IP address should only be set to 0.0.0.0 if the DHCP server is assigning the same IP address to this SEG-1 device every time, by way of using a non-expiring IP address lease that is assigned to the MAC address of the device.  
Set Gateway IP Address : N : (do not change) The term 'Gateway' here refers to a network router on the LAN not the Gateway device you are configuring here.
- Netmask : 0 (do not change)
- Change telnet config password : N (do not change)

- **1 Channel 1 Configuration : Settings of the RS232 port.**

- Baud Rate: 1200 (do not change)
- I/F mode: 4C (do not change)
- Flow: 00 (do not change)
- Use UDP : Y (do not change)
- Source Port = 09997 (If there is a need to change this then make sure to change the site settings within Hub Manager Pro to match)
- Destination Port : 00000 (do not change)
- Destination IP: 0.0.0.0 (do not change)

- **2 Channel 2 Configuration : Settings of the RS485 port.**

- Baud Rate: 19200 (do not change)
- I/F mode: 4C (do not change)
- Flow: 00 (do not change)

- **6 Security :** Here you can change the Encryption key manually to match the encryption key Hub Manager Pro is using. This is normally not necessary because Hub Manager Pro normally performs this function. After going through this menu item completely, the encryption settings will automatically be saved and the session will be closed.

- Disable Telnet setup : (Y)
- Disable TFTP firmware upgrade : (Y)
- Disable port 77FE? : (Y)
- Disable web setup? (Y)
- Enable encryption? (Y) Encryption must always be enabled, because all data sent to the SEG-1 is encrypted. Do not disable or communications with Hub Manager Pro will fail.
- XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX Change key? (N) This 128 bit security key is changed via the Hub Manager Pro software. If this security key does not match the key stored in the site settings in Hub Manager Pro, then any communication attempts to your controller hardware will fail.

- **7 Factory Defaults :** Sets all options back to out-of-box factory defaults. After performing this function, any security key you had in this SEG-1 will be deleted and set back to default. In order to speak to this SEG-1 again, you will now need follow the directions above to Default the Security Key in Hub Manager Pro. Be sure to set a new security key into the SEG-1, using Hub Manager Pro before you attempt to send sensitive user data to the door controllers.

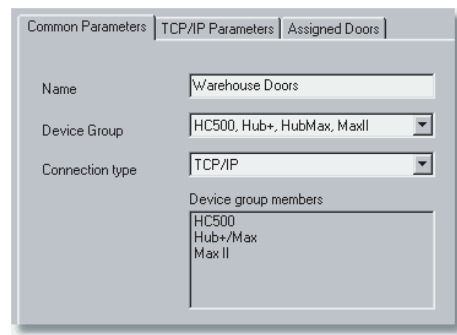
- **8 Exit Without Save :** Cancels any changes you have made in setup.

- **9 Save and Exit :** Saves any changes you have made in setup and exits

## 4. Configuring the IP Address in Hub Manager Professional

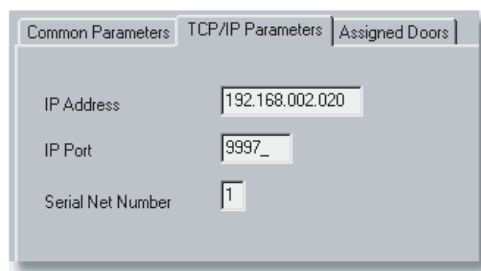
Now it is time to open Hub Manager Pro, create a new site, and configure this site to communicate to the SEG-1 with the IP address you have received from the IT administrator. The example shown below illustrates how to set up a SEG-1 connected Hub controller network, but the SEG-1 can also be used to communicate to a new type of controller called the "prox.pad plus". The steps are exactly the same, just the 'Device Group' will be different.

1. Run Hub Manager Professional 5 and login.
2. Select **Database | Sites** and then select the **Add** button.
3. Enter a descriptive Name for this grouping of controllers that will be communicated with via the SEG-1.
4. Select the **Device Group** drop down list and select the controller family you are connecting to the Gateway. For this example, we are going to choose the device group named **'HC500, Hub+, HubMax, MaxII'**.
5. Select the **Connection Type** named **TCP/IP**.



The screenshot shows the 'Common Parameters' tab of the configuration window. The 'Name' field contains 'Warehouse Doors'. The 'Device Group' dropdown menu is set to 'HC500, Hub+, HubMax, MaxII'. The 'Connection type' dropdown menu is set to 'TCP/IP'. Below these fields, there is a section titled 'Device group members' which lists 'HC500', 'Hub+/Max', and 'Max II'.

6. Select the tab named **TCP/IP Parameters**.



The screenshot shows the 'TCP/IP Parameters' tab of the configuration window. The 'IP Address' field contains '192.168.002.020'. The 'IP Port' field contains '9997\_'. The 'Serial Net Number' field contains '1'.

7. In the edit box labeled IP Address, enter the **IP Address** that the IT Administrator gave you.  
Note: Be sure to enter any leading 0's, as shown in the example. The IP Port and the Serial Net Number do not need to be modified in any way.
8. Select **Save**.
9. Setup of the SEG-1 site in Hub Manager Professional is complete.

## 5. SEG-1 Parameters

### IP Address

The IP address you have received from your IT administrator is assigning to the SEG-1.

### IP Port

The IP Port is an 'ear' that the SEG-1 configured to listen on for communications from Hub Manager Pro. This is set to 9997 by default, but can be changed both in Hub Manager Pro and in the SEG-1, if necessary. But unless the IT Administrator requests the IP Port be changed, this parameter can be disregarded.

### SEG-1 Serial Net Number

This corresponds to the serial port located on the SEG-1 device itself. The SEG-1 is capable of connecting to both RS232 and RS485 products, which are Serial Net Numbers 1 and 2 respectively. This parameter should never be changed.

### Security Key

All communication and data exchanged between the PC and the SEG-1 are sent using 128 bit AES encryption. The encryption key that is used to encrypt the data can be changed anytime by the operator of Hub Manager Pro 5 as long as Hub Manager Pro currently has same key that is currently stored in the SEG-1.

### WARNING:

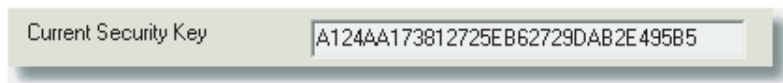
It is highly recommended that you change the encryption security key during the initial SEG-1 setup. All new SEG-1 are shipped with the same initial security key, and Hub Manager Professional 5 is also shipped with this same security key. By not changing the security key, anyone running Hub Manager Pro on their PC somewhere else on your LAN would be able to communicate with your door controllers. But once this security key is changed to a new 128 bit number, then all the data that is passed out the ethernet port of your PC is then encrypted with that key and decrypted by the SEG-1 using that same key.

The screenshot shows a configuration window with three tabs: 'Common Parameters', 'TCP/IP Parameters', and 'Assigned Doors'. The 'TCP/IP Parameters' tab is active. It contains the following fields and buttons:

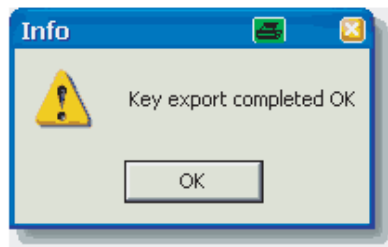
- IP Address:** A text box containing '192.168.002.013' and a button labeled 'Launch Gateway Configuration Utility'.
- IP Port:** A text box containing '9997'.
- Serial Net Number:** A text box containing '1'.
- Current Security Key:** A text box containing 'DEFAULT SECURITY KEY'.
- Security Key Instructions:** A block of text stating: 'The security key is used to perform 128 bit encryption of the data passed between the PC and the Gateway. Press F1 for more details on the security key.'
- Buttons:** Three buttons are located below the instructions: 'Generate Random Security Key', 'Generate Default Security Key', and 'Set this Security Key into the Gateway' (which has a green checkmark icon).

## Generate Random Security Key

This button will generate a new 128 bit security key and will then display the hexadecimal representation in the 'Current Security Key' field (see below)



If you wish to send this new encryption key to the SEG-1, choose the button labeled 'Set This Security Key into the Gateway'. Hub Manager will then attempt to communicate with the SEG-1 and change the Encryption Key stored in the SEG-1. Once this new key is successfully set into the SEG-1, you will receive a confirmation message (see below).



## Generate Default Security Key

This option should be used if you are installing a new SEG-1 to replace an existing SEG-1, or if you were instructed to default the SEG-1 back to factory defaults. This option will erase the existing security encryption key for this particular SEG-1 stored in Hub Manager Pro and replace it with the known default security key of a brand new (or defaulted) SEG-1.

After selecting this option, you will receive a warning message explaining that setting the security key back to defaults should only be done if you are installing a new SEG-1 or if you have defaulted an existing SEG-1. Once you agree to this, you must then choose the button labeled **'Set This Security Key into the Gateway'**. You will then receive a confirmation message that explains that this option will just save the defaulted security key into the Hub Manager Pro database. You can now install your new or defaulted SEG-1 onto the LAN and attempt to communicate with it. Don't forget to change the security key once you have established communications with the new (or defaulted) SEG-1.

## Set This Security Key into the SEG-1

Use this option if you wish to set a new random security key into the SEG-1. The encryption key displayed in the **'Current Security Key'** field is what is sent during this procedure.

**NOTE:** In order to change a security key in a SEG-1, Hub Manager Pro must already know the existing security key that is stored in the SEG-1. If you think there has been a mix up, and you think Hub Manager Pro may not know the SEG-1's security key, then you should perform the steps to **'Default the Gateway to Factory Settings'** noted below, and when that process is complete, you can then attempt to change the security key.

## 6. Defaulting the SEG-1 to Factory Settings

### Encryption Security

For security reasons, the SEG-1 must be removed from the LAN and brought back to the PC. You will then enter the configuration menu through the serial connection. The configuration utility cannot be entered into through the ethernet port. This is done so that not just anyone on the LAN can change the settings of the SEG-1.

**NOTE:** This process may also be necessary if you have used the Restore Database function of Hub Manager Pro and the Security Key stored in the database that you just restored does not match the security key currently stored in the SEG-1.

To default the encryption security key in the SEG-1, you must perform the following in order:

1. Connect the supplied DB9 adapter labeled 'Gateway Config' to your PC's com port.
2. Remove the Gateway from the LAN (and power supply) and bring it back to the PC.
3. Use the 6' modular cord (supplied with the SEG-1) and plug it into the port on the SEG-1 labeled 'RS232'.
4. Now run the Gateway\_Config.ht shortcut from the Hub Manager Pro 5 Program folder  
**Start | Programs | Hub Manager Pro 5 | Gateway\_Config.ht.**

**NOTE:** If Com Port 1 is not available on your PC, then you may need to change the properties of this HyperTerminal session to use another Com Port. To change the com port setting, open Windows Explorer, browse to C:\Program Files\IEI\HubManagerPro5\Program, then right click on the file named Gateway\_Config.ht, then select the tab named Connect To then select the correct com port in the field named Connect Using. Now relaunch the HyperTerminal Shortcut

5. Disconnect power to the SEG-1.
6. Press and hold down the x key (lowercase) on the PC keyboard, while the HyperTerminal program is running.
7. Power up the SEG-1.
8. In a few seconds you should get a response from the SEG-1 and a menu will be displayed.
9. Choose the option labeled '**factory defaults**'. The SEG-1 will then be set back to Out-Of-Box factory defaults. You can now configure the SEG-1 as if you are installing it for the first time.
10. In order to speak to this SEG-1 again, you will now need follow the directions above to Default the Security Key in Hub Manager Pro. Be sure to set a new security key into the SEG-1 before you attempt to send sensitive user data to the door controllers.

## 7. TROUBLESHOOTING GATEWAY PROBLEMS

A utility to help trouble shoot SEG-1 connection problems has been provided at the following path:

**C:\Program Files\IEI\HubManagerPro5\Program\Utilities\Gateway\_Troubleshooting\_UTILITY.exe.**

Because there are significantly more links in the chain to get data from Hub Manager Pro across the LAN/WAN to the SEG-1 and then to the door controllers, this utility will systematically and logically walk you through the steps necessary to more efficiently figure out the cause of your communication error with the SEG-1 and/or door controllers.

SEE TROUBLESHOOTING FLOWCHARTS ON PAGES 17-19 OF THIS MANUAL

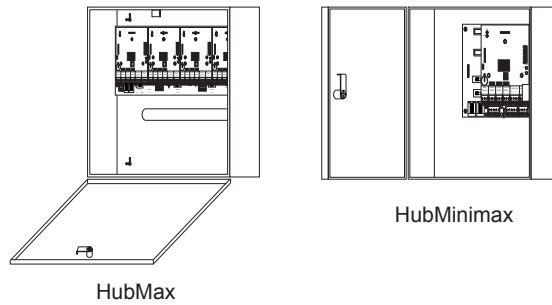
# 8. WIRING CONNECTIONS

The following diagrams illustrate the connections to door 1 of an access control network

## HubMax and HubMinimax CONNECTION OPTIONS (RS232)

Two different methods to connect Port A of the HubMax or HubMiniMax to the SEG-1:

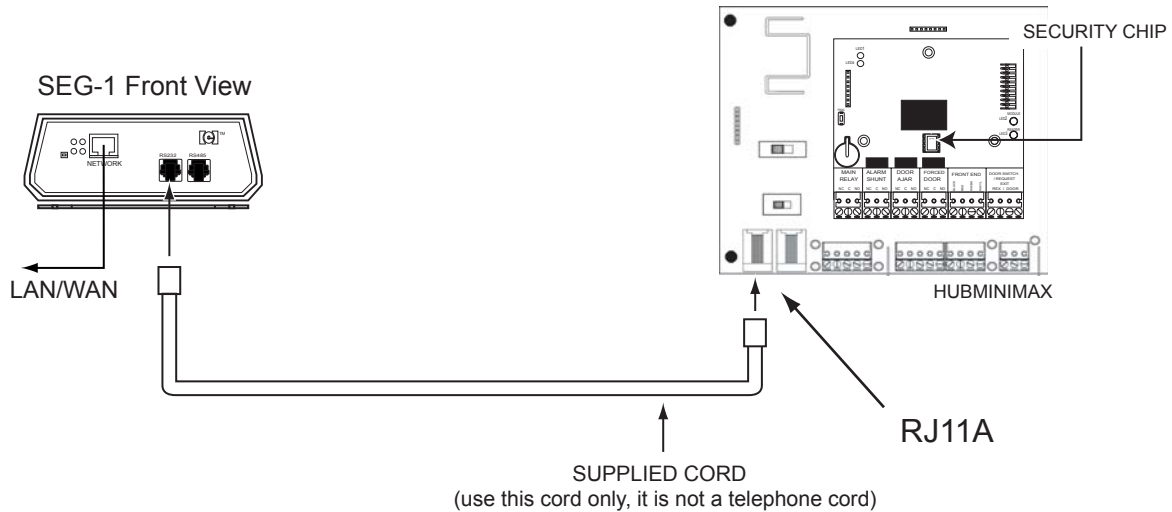
1. Connect to the RS232 modular jack (front of SEG-1)
2. Connect to the RS232 terminals (rear of SEG-1)



**NOTE:** If connection to SEG-1 is NOT located at the HubMax or HubMiniMax then the connection must be made via stranded/shielded cable.

### Method 1:

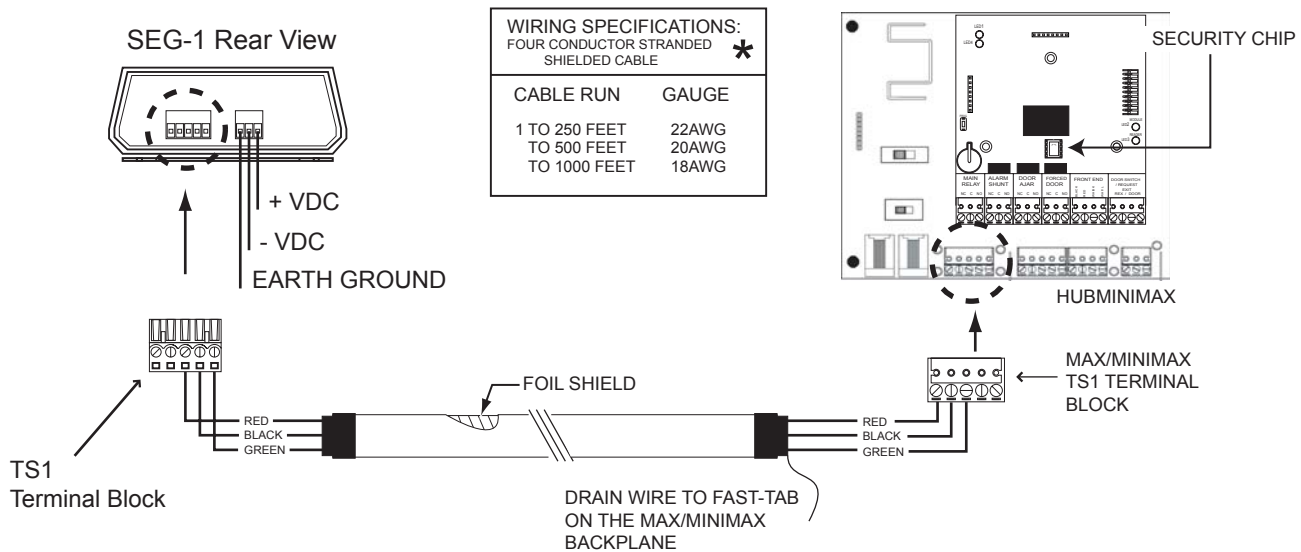
The diagram below illustrates the method to connect the HubMax or HubMinimax to the RS232 port of the SEG-1 via its RS232 modular jack on the front of the unit.



### Method 2

The diagram below illustrates the method to connect the HubMax or HubMinimax to the RS232 port of the SEG-1 via the terminal block at the rear of the unit.

**NOTE:** The stranded shielded cable used in the diagram shows the connection to the SEG-1 across a distance.



\* THIS CHART PERTAINS TO THE CABLE RUN BETWEEN THE SEG-1 AND IEI ACCESS SYSTEMS

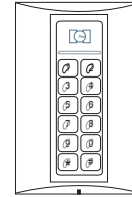
# WIRING CONNECTIONS

The following diagrams illustrate the connections to door 1 of an access control network

## HC500P CONNECTION OPTIONS (RS232)

Two different methods to connect Port A of the HC500P to the SEG-1

1. Connect to the RS232 modular jack (front of SEG-1)
2. Connect to the RS232 terminals (rear of SEG-1)

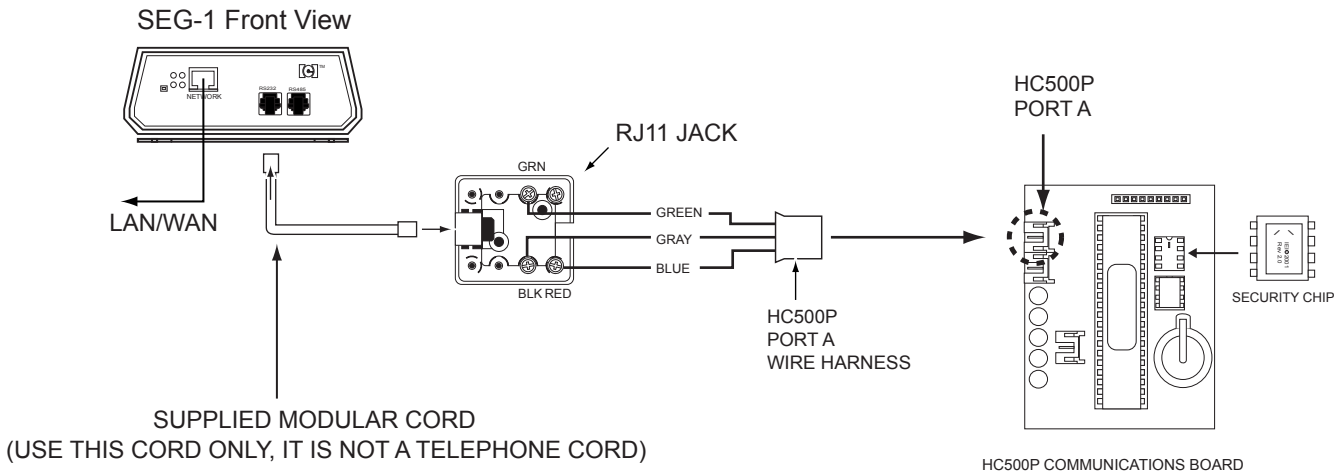


HC500P

**NOTE:** If connection to SEG-1 is NOT located at the HC500P then the connection must be made via stranded/shielded cable.

### Method 1:

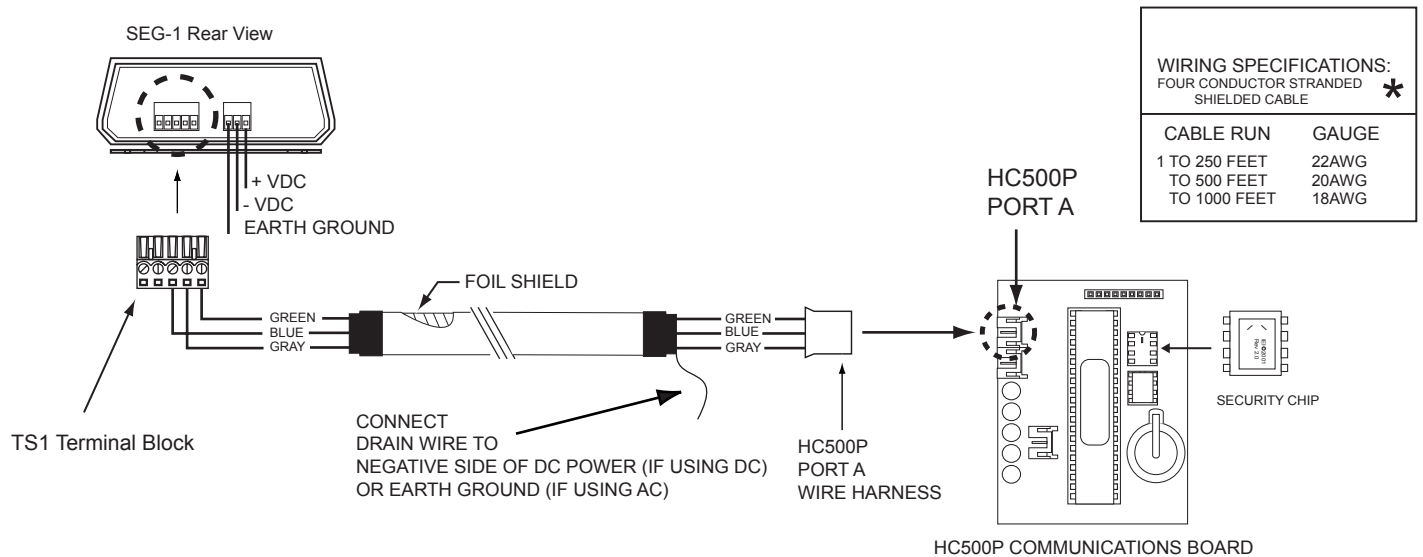
The diagram below illustrates the method to connect the HC500P to the RS232 port of the SEG-1 via its RS232 modular jack on the front of the unit.



### Method 2:

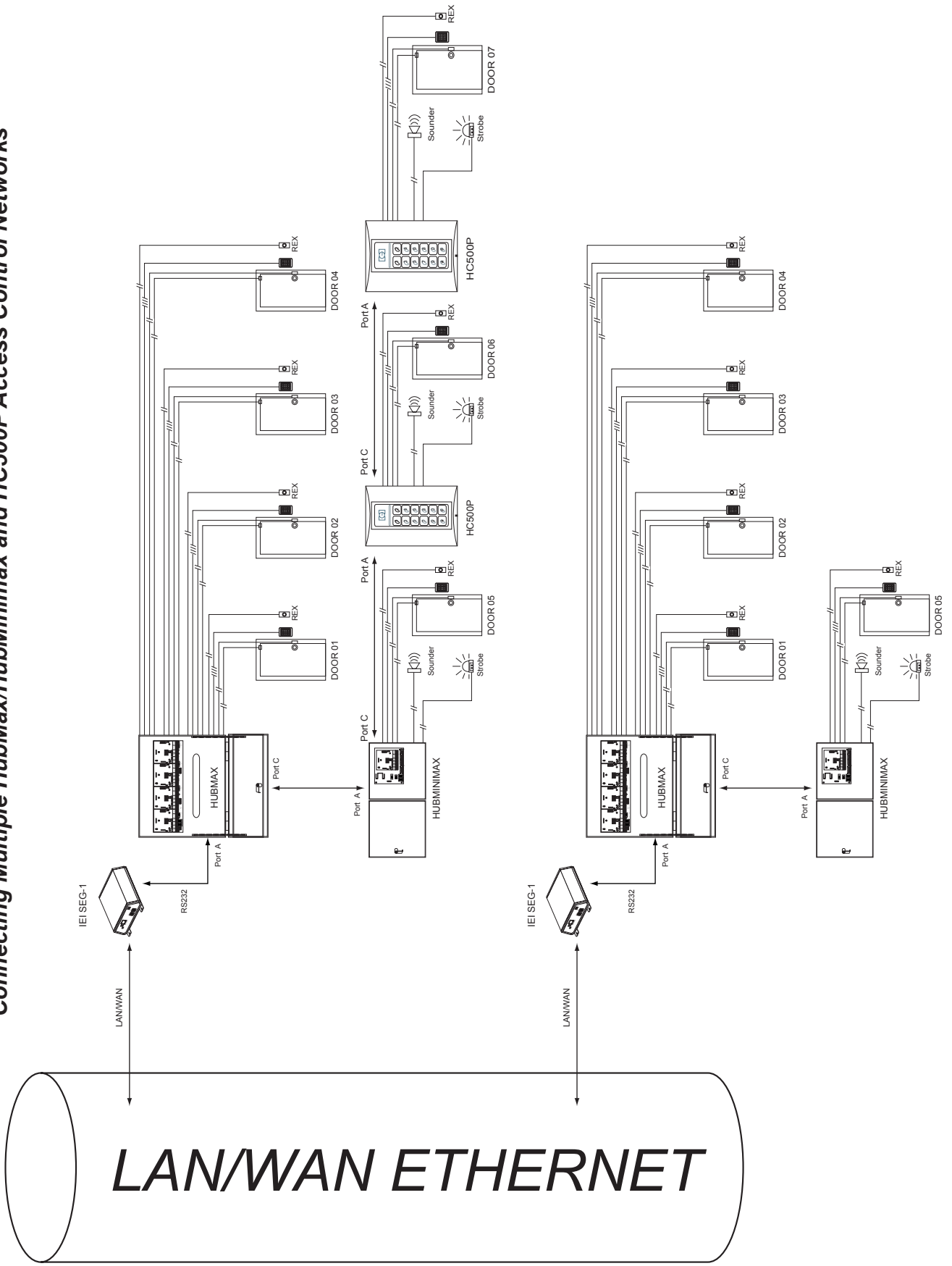
The diagram below illustrates the connections between the HC500P and the RS232 port of the SEG-1 via the terminal block at the rear of the SEG-1.

**NOTE:** The use of stranded shielded cable used in this diagram below is necessary when connecting the SEG-1 at a distance from the controller.



\* THIS CHART PERTAINS TO THE CABLE RUN BETWEEN THE SEG-1 AND IEI ACCESS SYSTEMS

# Connecting Multiple HubMax/HubMinimax and HC500P Access Control Networks



**LAN/WAN ETHERNET**

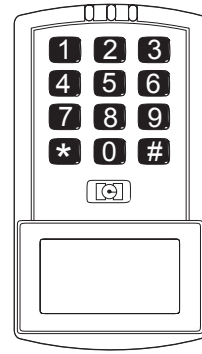
# WIRING CONNECTIONS

The following diagrams illustrate the connections to door 1 of an access control network

## prox.pad plus CONNECTION OPTIONS (RS485)

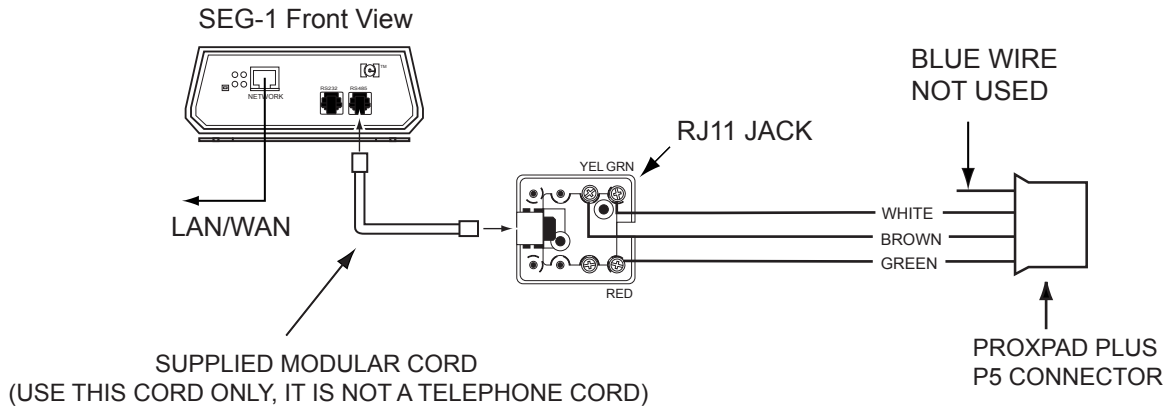
- Two different methods to connect P5 Connector of the prox.pad plus to the SEG-1:
1. Connect to the RS485 modular jack (front of SEG-1)
  2. Connect to the RS485 terminals (rear of SEG-1)

**NOTE:** If connection to SEG-1 is NOT located at the prox.pad plus then the connection must be made via stranded/shielded cable.



### Method 1:

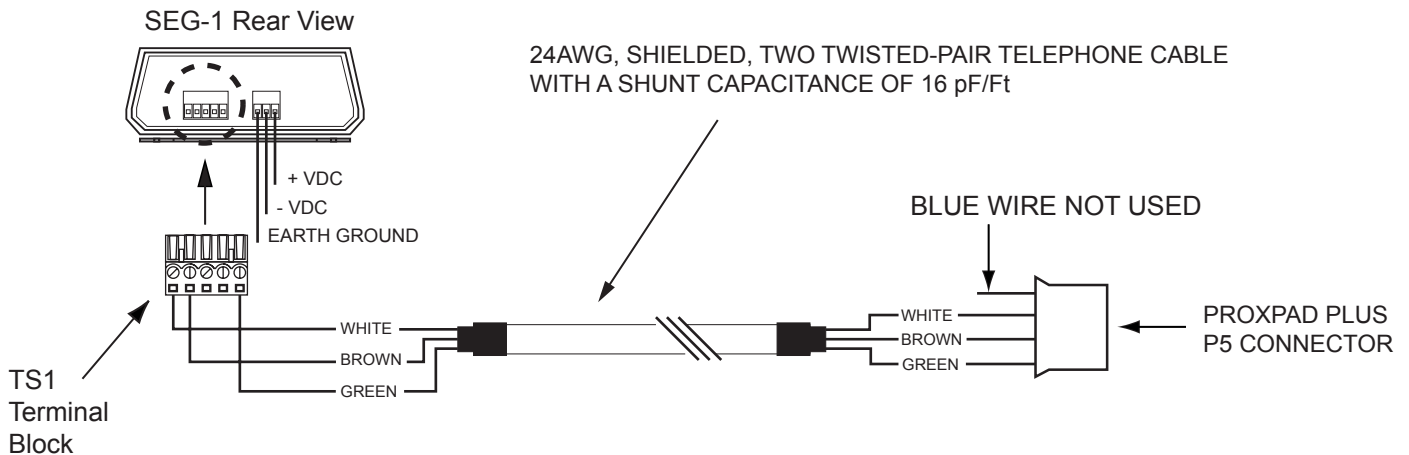
The diagram below illustrates the method to connect the prox.pad plus to the RS485 port of the SEG-1 via its RS485 modular jack on the front of the unit.



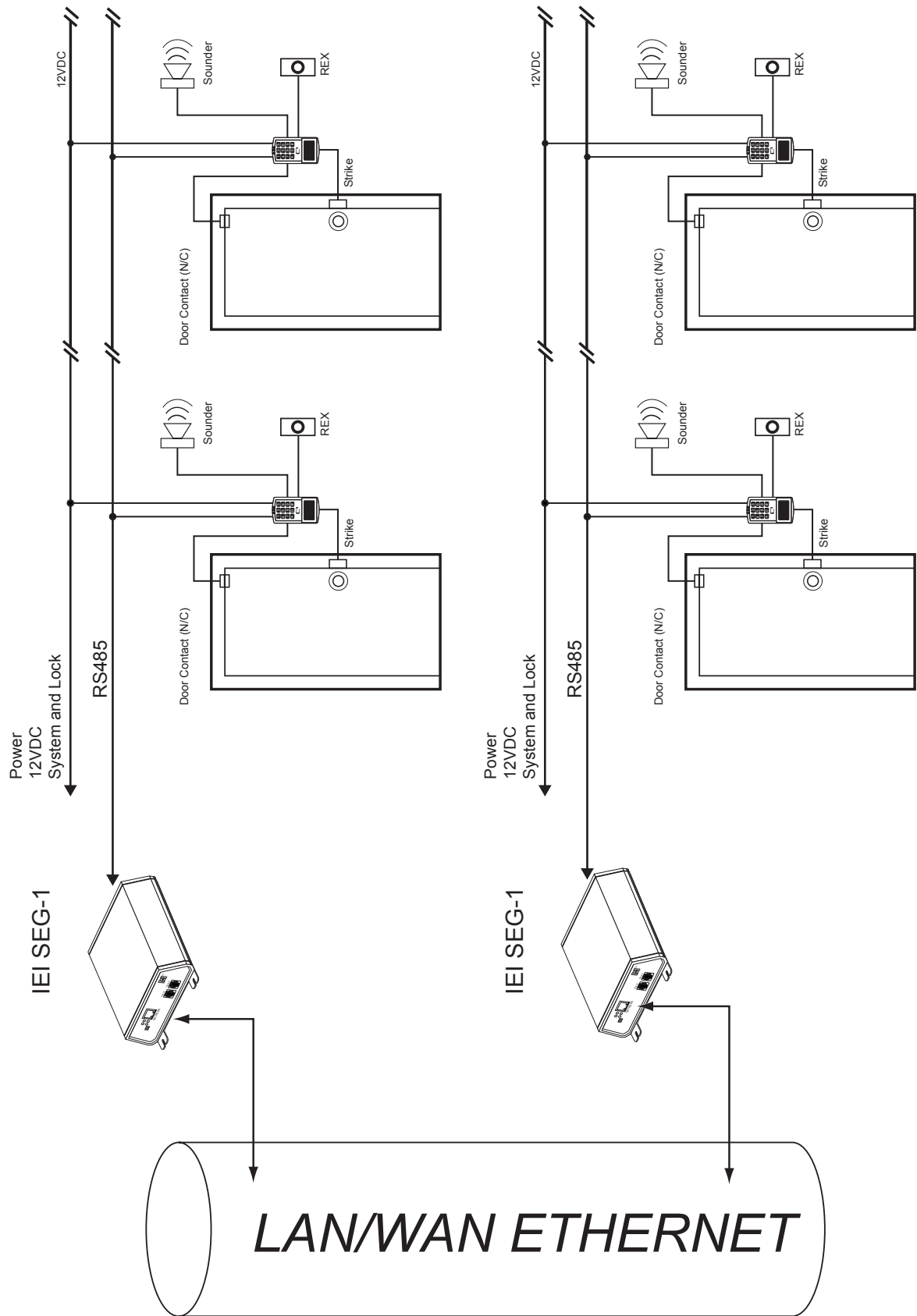
### Method 2:

The diagram below illustrates the method to connect the prox.pad plus to the RS485 port of the SEG-1 via the TS1 terminal block at the rear of the unit.

**NOTE:** The use of stranded/shielded cable in the diagram shows the connection to the SEG-1 across a distance.



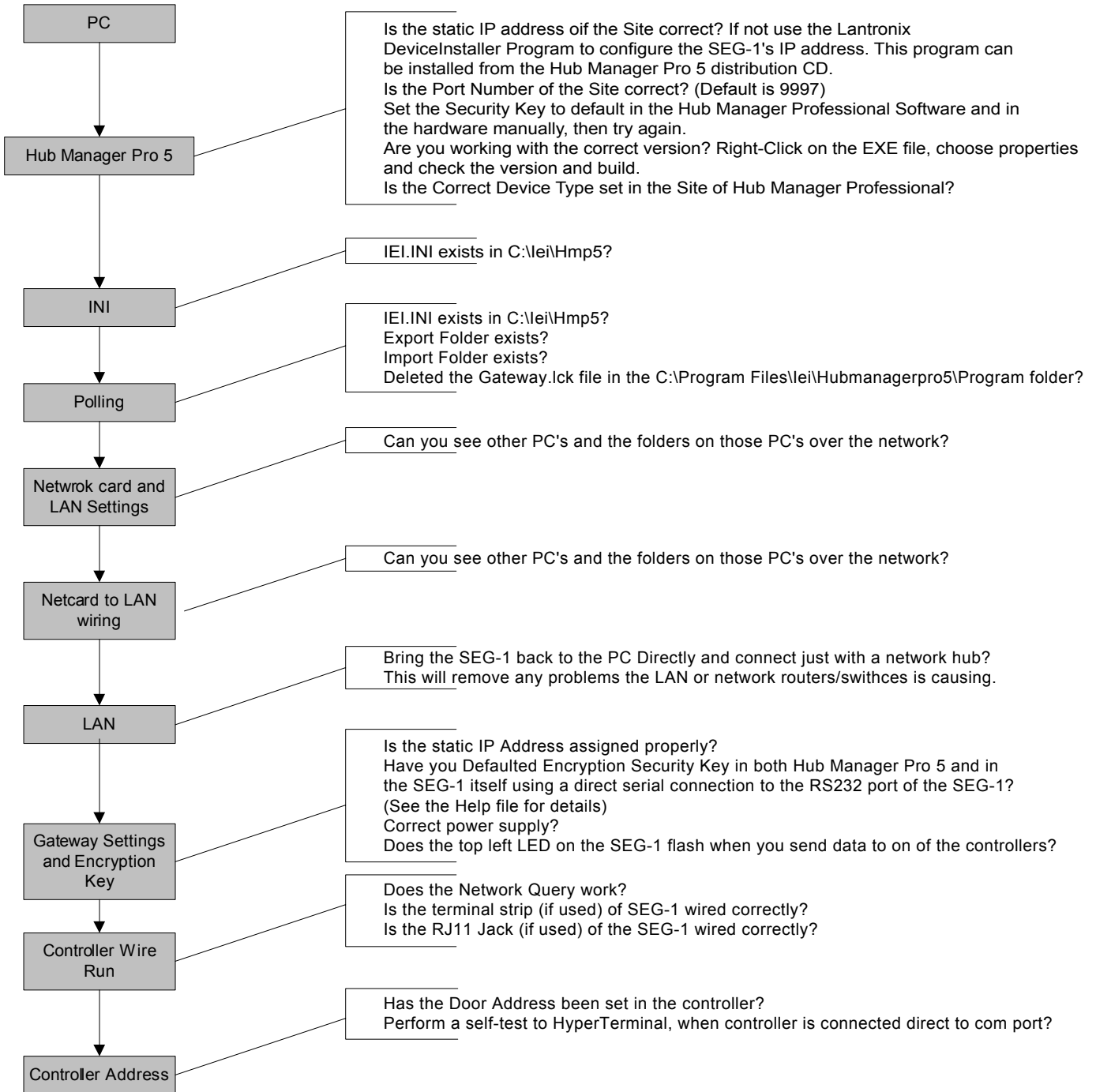
**Connecting Multiple Proxpad Plus Access Control Networks**



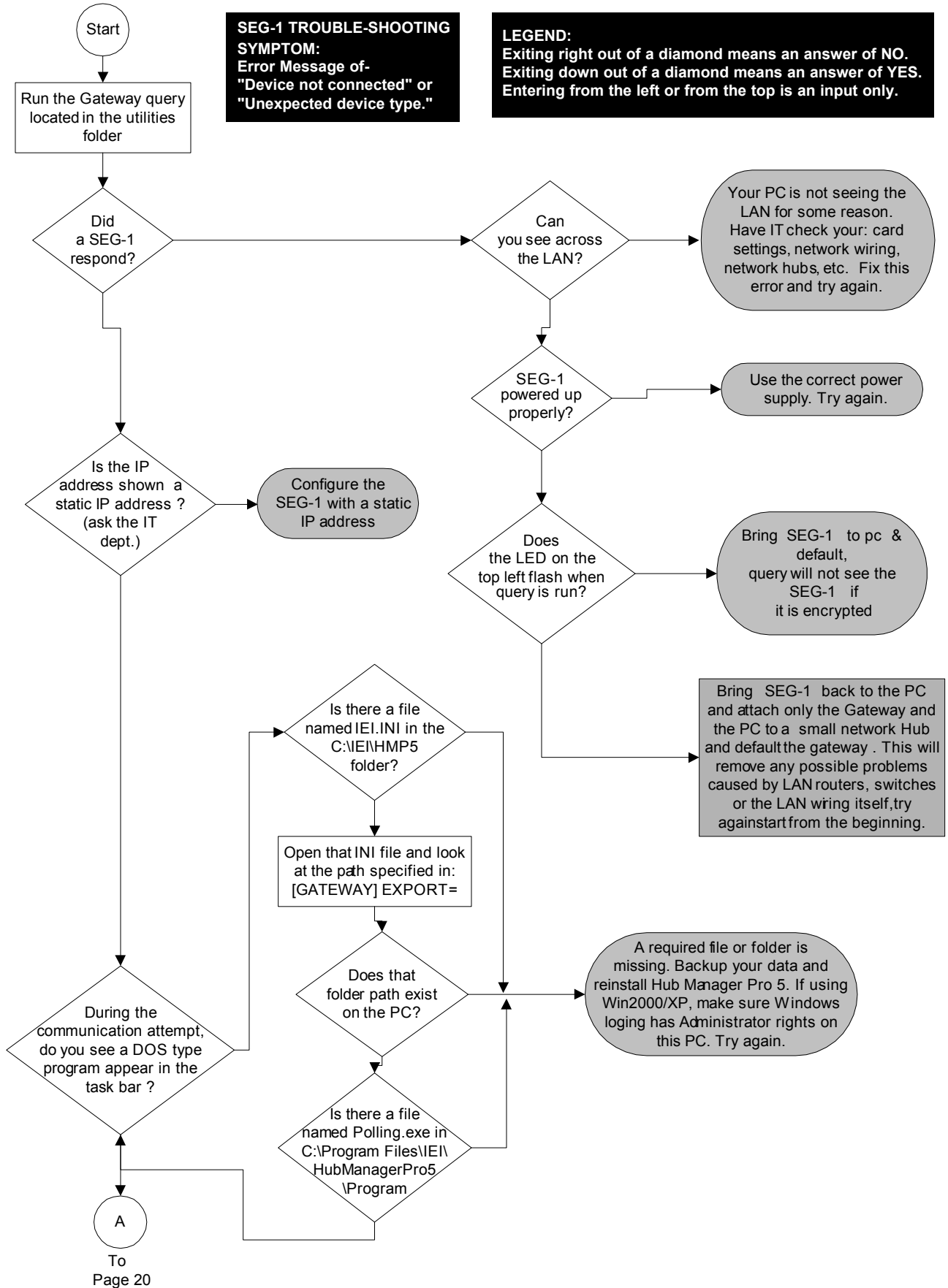
# 9. TROUBLESHOOTING

## Link in the Chain

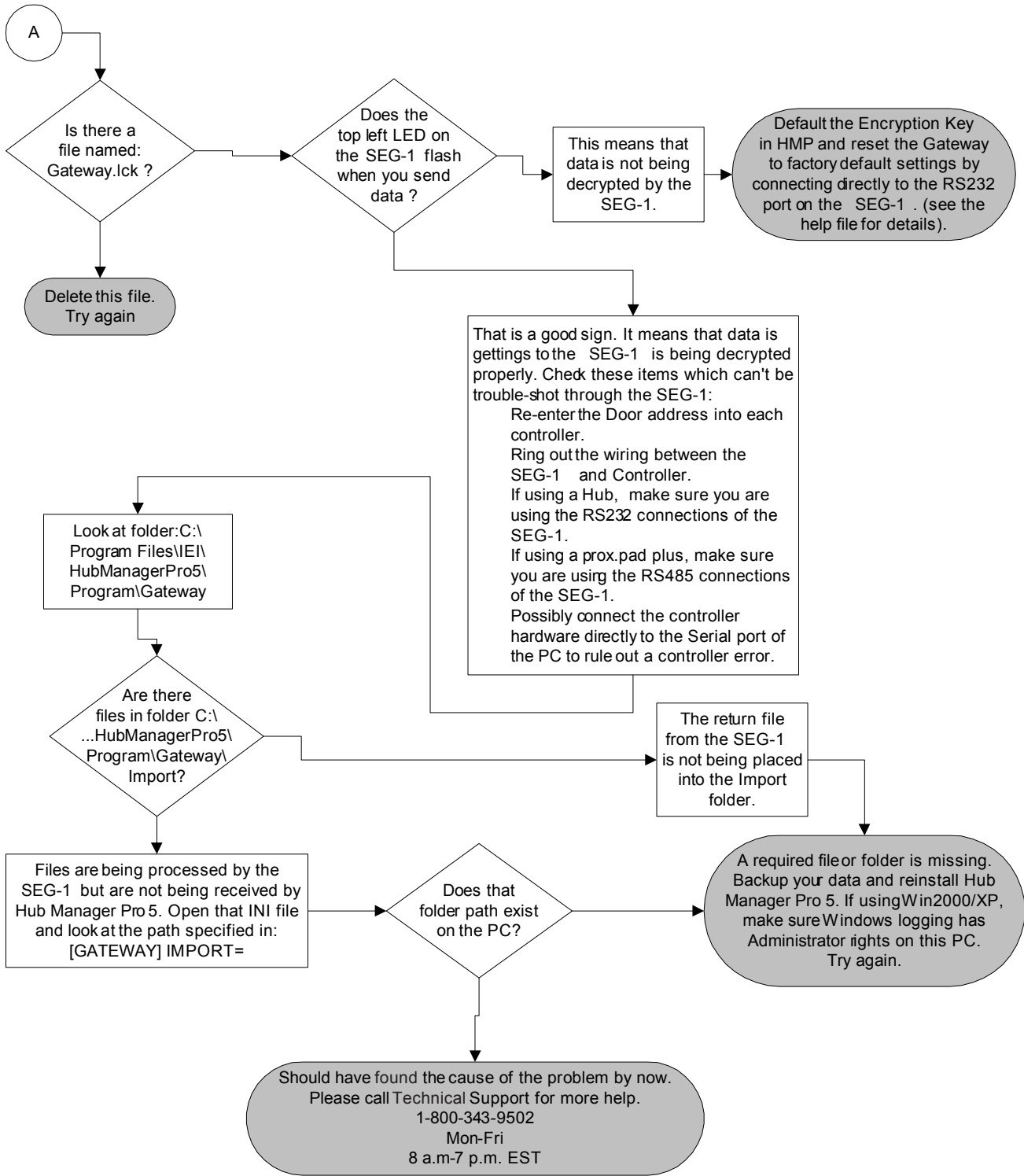
## Possible Problem



# TROUBLESHOOTING



# TROUBLESHOOTING



## **10. FCC COMPLIANCE STATEMENT**

**This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.**

**This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.**

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

## **11. WARRANTY POLICY**

International Electronics Inc. (IEI) warrants its products to be free from defects in material and workmanship when they have been installed in accordance with the manufacturer's instructions and have not been modified or tampered with. IEI does not assume any responsibility for damage or injury to person or property due to improper care, storage, handling, abuse, misuse, normal wear and tear, or an act of God.

IEI's sole responsibility is limited to the repair (at IEI's option) or the replacement of the defective product or part when sent to IEI's facility (freight and insurance charges prepaid) after obtaining IEI's Return Material Authorization. IEI will not be liable to the purchaser or any one else for incidental or consequential damages arising from any defect in, or malfunction of, its products.

Except as stated above, IEI makes no warranties, either expressed or implied, as to any matter whatsoever, including, and without limitation to, the condition of its products, their merchantability, or fitness for any particular purpose.

Warranty Period for Secured Ethernet Gateway (SEG-1) is 2 Years

All products have date code labeling to determine the warranty period.

A 90-day grace period is added to all products to account for shelf life.