Port Authority
PA111 - PA155 - PA199
AES

User Manual

Manual Version 1.75
OBM Version

Communication Devices Inc.
85 Fulton Street
Boonton, NJ 07005
USA
Phone: +1 973 334-1980
Fax: +1 973 334-0545
Internet: support@commdevices.com

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Table of Contents

Table Of Figures

THERE ARE NO DEFAULT USER CREDENTIALS SHIPPED IN THE DEVICE. IT NEEDS TO BE CONFIGURED VIA THE CDI "OUT OF BAND MANAGER" (OBM) TO OPERATE

1. Port Authority PA111, PA155, PA199

1.1 Port Authority PA111, PA155, PA199

The Port Authority 111, Port Authority 155 and Port Authority 199 are a Secure 1, 5 or 9 port switch that provides network and dial-up access to serial console ports. The devices also provide power control of up to nine (9) remote devices.

All 3 models are based on the same chassis, power supply, and motherboard (engine) with added serial expansion boards for increased connectivity. The chassis is a standard 1U, 19inch rack mount type.

For the purposes of this manual we will only refer to the nine port version the Port Authority 199 AES. All things that apply to the PA-199 apply to the PA-111 and PA-155.

The device can be configured in 3 versions; PA-111, PA-155 and PA-199 respectively.

All are FIPS 140-2 certified with 128, 192 or 256 bit AES Cipher Feedback Encryption.

THERE ARE NO DEFAULT USER CREDENTIALS SHIPPED IN THE DEVICE. IT NEEDS TO BE CONFIGURED VIA THE CDI OUT OF BAND MANAGER TO OPERATE

There are five different types of connections on the rear panel.

PA111

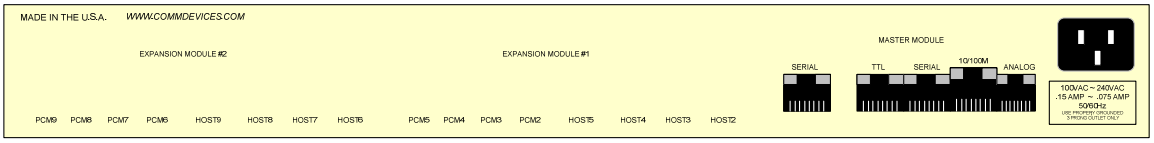


Figure 1 PA155

PA155

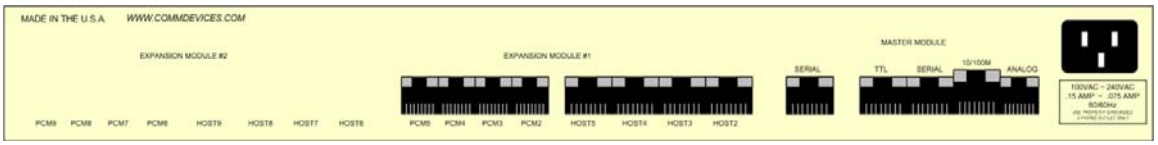


Figure 2 PA155

PA199

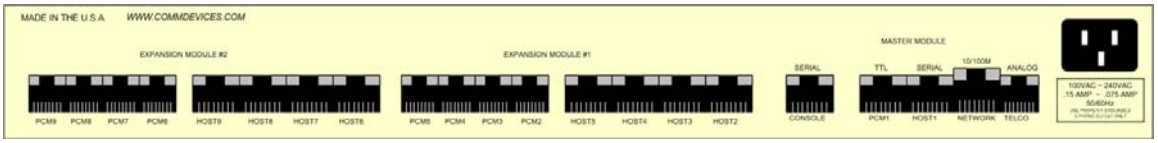


Figure 2 PA199

1.2 Common Connections

(1) An RJ45 connector, SERIAL CONSOLE connection for loading the device from the Out of Band Manager (OBM) software or simple network settings from a dumb terminal interface. This is labeled CONSOLE. The defaults are 9600 baud 8 data no parity.

(2) An RJ45 connector for a Network Connection. This is a 10/100M interface and is labeled NETWORK. There is a BROWSER function that allows simple network properties to be loaded. Default Address is 199.199.199.1

(3) An RJ11 connector for an analog TELCO connection to an internal Modem. This is labeled TELCO.

(4) 1, 5 or 9 RJ45 connector(s) for connection to HOST console ports. These are labeled HOST1 through HOST9. The defaults are 9600 baud, 8 data no parity.

(5) 1, 5 or 9 RJ12 connector(s) for connection to CDI Power Control Modules. These are labeled PCM1 through PCM9. These are TTL control ports.

1.3 Getting Started

1.3.1 Connecting Power to Device.

CAUTION!
THIS DEVICE SHOULD BE INSTALLED BY A
QUALIFIED SERVICE PERSON AND
MUST BE CONNECTED TO AN
EARTHED MAINS SOCKET-OUTLET

The device will connect to a standard alternating current (AC) wall outlet (100VAC , .15A ~ 240VAC, .075A 50/60Hz). The socket outlet should be installed near the equipment and should be easily accessible. Make sure the power cord supplied is of the correct type for the country being installed.

The user is to disconnect all telecommunication network connectors before disconnecting the power supply cord. In addition the equipment should be installed by a qualified service person and connected to a socket-outlet with a protective earthing contact.

In English: equipment must be connected to an earthed mains socket-outlet.
In Finland: Laite on liitettava suojakosketinpistorasiaan
In French: Débranchez tous les connecteurs de télécommunications avant de couper l'alimentation
In Norway: Apparatet ma tilkoples jordet stikkontakt
In Sweden: Apparaten skall anslutas till jordat uttag

The power parameters are:

Voltage	Frequency	Current
110VAC	60Hz	.2amp
240VAC	50Hz	.1amp

1.3.2 Power on and Self Test

The PA111 will go through an automatic internal self test upon initial power up. If any of the self tests fail, the device will not continue to operate. The status indicator for the self test is the Alarm LED

- **ALM- Alarm**

  The ALM LED will remain illuminated when there is any internal problems with the Port Authority 111. Such problems may be:

  - Internal Crypto Self Test Failure
  - Internal program checksum/MAC calculation fault
  - Internal Modem Self Test Failure

- Internal microprocessor fault

.

- **Any failure of the Self Test will render the device inoperable**

1.3.3 There are 4 ways to connect to the Port Authority-199

A PC running the Out of Band Manager (OBM) software accomplishes loading of the database and configuring the unit.

1.3.4 Serial Port

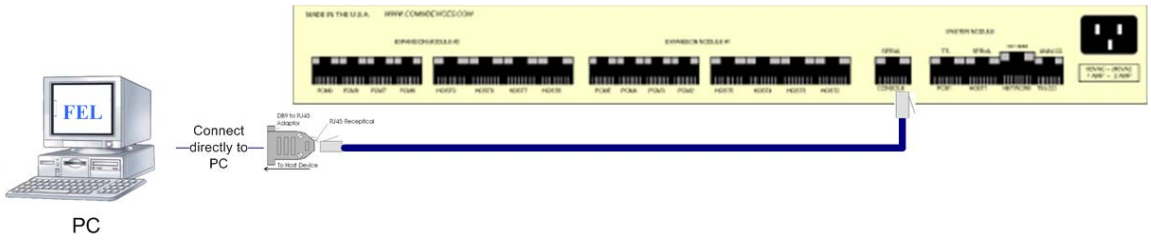


Figure 3 Serial Connection

Connect the DB9 to RJ45 adapter your PC. Snap the RJ45 cable into the DB9 to RJ45 adaptor and the SERIAL input on the Port Authority -199. The Serial connection is 9600 baud.

1.3.5 PA111 Client

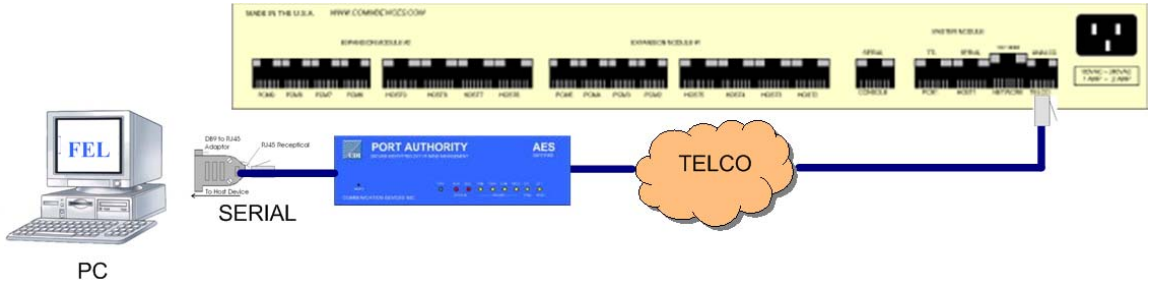


Figure 4 Serial Client Connection

If your PC is directly connected to a PA111, plug in the Port Authority -199 into a telephone jack for the Modem function. Both the PA111 and Port Authority must be given telephone numbers in Out of Band Manager (OBM) software

1.3.6 Configuring simple network parameters

The PA-199 is fully configured via a central server running the Out of Band Manger software. Local network properties can be configured via a dumb terminal or browser.

Programming Network Properties in PA111, PA155, PA199 devices via Browser or Serial Console Port. PA1X device needs minimum firmware version 10.00.49D.

PA1X devices are shipped with a default IP address of 199.199.199.1. There are two new simple ways to insert a valid IP address for your network into the device, using a Web Browser, or using a serial connection from your PC to the Serial Console port on the PA1X. In order for these 2 features to be available, one of two things must be true:

1. The device needs to be at the default IP address of 199.199.199.1.

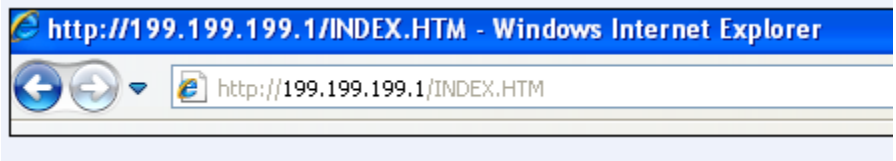
   OR

2. There must be no users programmed into the device.

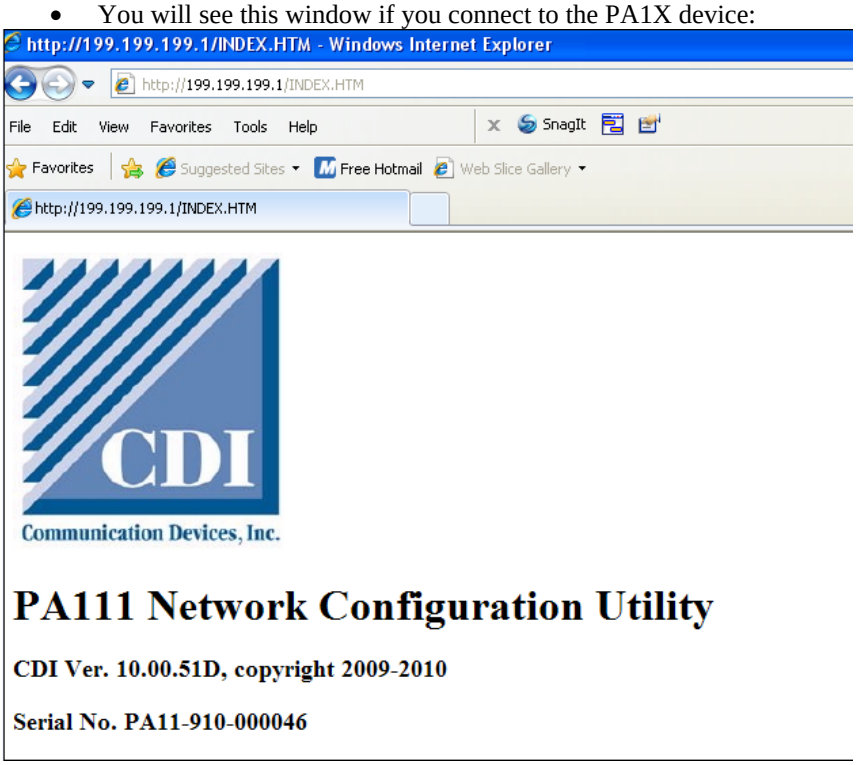
**** Once the device is off the default IP address AND has at least one user programmed, this feature will be unavailable unless the address is changed back to default or all users are cleared.*

I) Using a Web Browser to configure IP address:

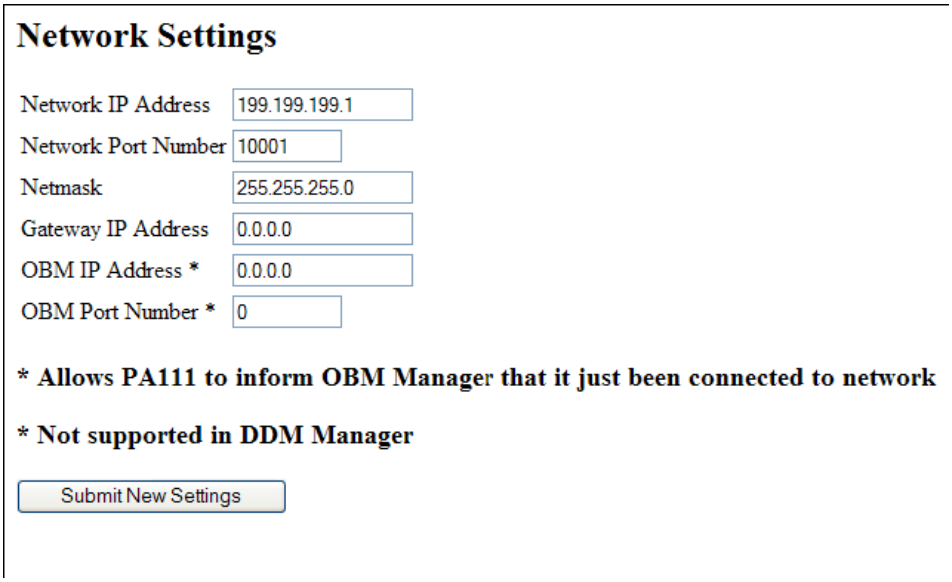
If the device is at the default IP address of 199.199.199.1 and you plan on using a web browser to configure a valid IP address, you first must temporarily change the IP address of the PC to something in the 199.199.199.XXX subnet. Then you can open a web browser and type in 199.199.199.1 in the address bar.



- You will see this window if you connect to the PA1X device:



- You will see the firmware version in the device and its serial number.
- From this page you can enter these parameters:

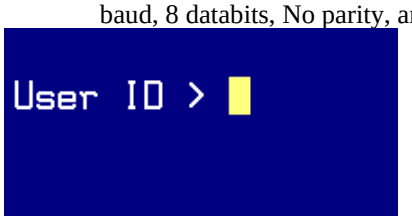


- The OBM (Out of Band Manager) is the new CDI software for managing CDI devices. OBM IP Address and OBM Port Number fields can be disregarded if using DDM.
- After hitting the "Submit New Settings" button you will be able to connect to the device at the newly assigned address.

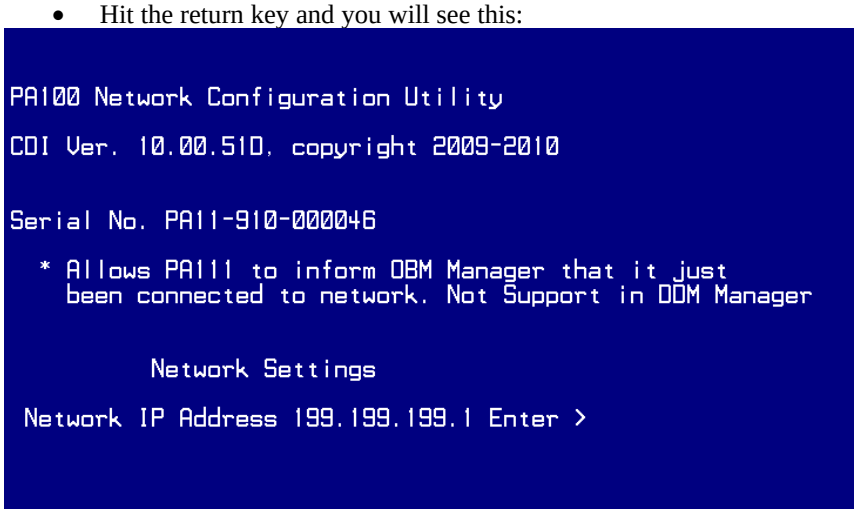
II) Using the Serial Console Port to configure IP address.

If you have an available serial port on your PC you can use the provided CDI adaptor and cable to connect directly to the Serial Console Port on the back of the PA1X to configure an IP address. There will be a blue RJ45-DB9 adaptor that goes on a DB9 serial port on the PC. A flat silver satin cable with RJ45 ends goes from the blue adaptor on the PC to the serial console port on the back of the PA1X.

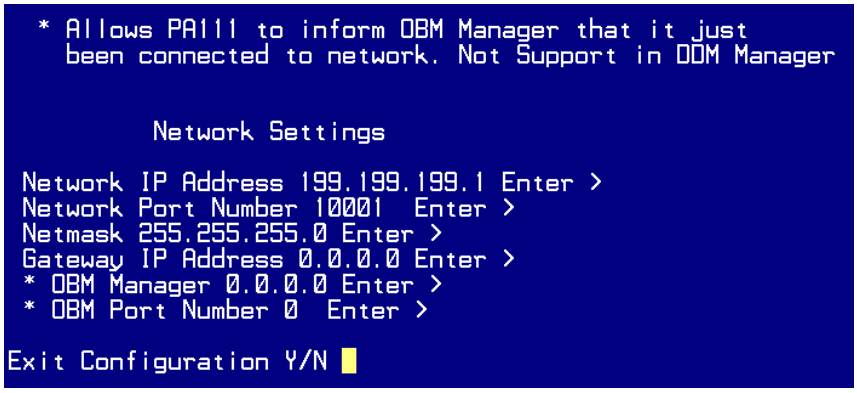
- Once connected open a terminal program and connect to the COM port you are using at 9600 baud, 8 databits, No parity, and 1 stopbit. You will get a User ID > prompt from the device.



- Hit the return key and you will see this:



- You can type in the new IP address and hit return. You will get to configure the same options seen in the web browser.



- After network settings are entered, hit “Y” to save and exit.

1.3.7 Full configuration of the PA-199 device.

The PA-199 is configured using a central server running CDI's Out of Band Manager (OBM) software. This is a Windows software package that can configure and manage CDI devices.

If you are installing a PA-199 unit in the field. Make the proper cable connections and then call your Out of Band Manager administrator to remotely configure the device. You may be required to locally configure the Network Properties prior to OBM configuration.

2. Port Authority -PA199 Front Panel

2.1 FRONT PANEL

Figure 5 PA199 Front Panel

2.1.1 LED's

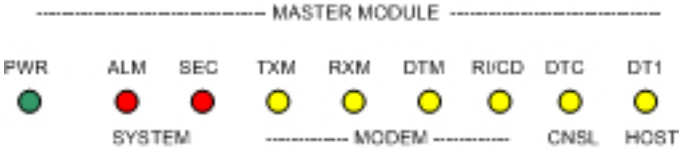


Figure 6 PA111 LED's

2.1.1.1 Security LED's

Upon power up of the Port Authority -199, the ALM and the SEC LED will illuminate for one second during the initialization. This will signal that the device is operating properly and is ready for operation.

- **ALM- Alarm**

  The ALM LED will illuminate when there is any internal problems with the Port Authority -199. Such problems may be:

  - Internal Crypto Self Test Failure
  - Internal program checksum/MAC calculation fault
  - Internal Modem Self Test Failure
  - Internal microprocessor fault

- **SEC- Secure**

This will illuminate when the device is performing any crypto functions.

2.1.1.2 Modem LED's

- **TXM LED- Transmit Data**
  The TX LED will illuminate when the internal modem is transmitting.

- **RXM LED- Receive Data**
  The RX LED will illuminate when the internal modem is receiving data.

- **DTM LED- Modem Data Terminal Ready**
  The DTR LED will be illuminated when the Port Authority -199 is ready to connect via its internal modem.
  - This LED will toggle during initialization and at the termination of any call.
  - This LED needs to be illuminated for the internal modem to receive a call.

- **RI/CD LED- Ring Indicator and Data Carrier Detect**
  The RI/CD LED has two functions

  The RI function will illuminate (flash) when the internal modem is receiving a valid ring signal.

  The DCD function is illuminated (solid) when the internal modem detects a valid carrier signal from another modem. This occurs during connection with another modem.

2.1.1.3 Console LED

- DTC - Console port Data Terminal Ready
  This will illuminate when DTR is present on the console port indicating a terminal is present.

2.1.1.4 Hosts LED's

Figure 7 PA199 LED's

- **DTx-Data Terminal Ready Host Port ‘x’**

  This will illuminate when the Host Port ‘x’ has DTR applied to it from a connected device. This indicates a proper cable is installed and the connected device is ready.

- **CDx –Carrier Detect present on Host Port ‘x’**

  This will illuminate when the Host Port ‘x’ has CD present from the PA-199 device. This signal is generated by the PA-199.

- **MOD PWR**

  This illuminates when an expansion board is install in the expansion slot and is correctly powered.

Network LED’s

- **Link- Ethernet Link and Activity**

  These LED’s are mounted directly on the Network Connector on the rear of the chassis and illuminate when there is connectivity or a link present respectively.

General LED’s

- **PWR- Power**

  This LED will illuminate when power is applied to the Port Authority -199.

Switches

- **RESET- Reset**

  Holding in the Reset push button switch for certain lengths of time causes different results. The suggested implement for pressing the RESET button is a paper clip.

Seconds	Result	● LED’s ●
1second then release	Restarts Unit	ALM LED turns on after 1 second – after restart they will cycle
5second then release	Returns SYSTEM KEY and PASSWORD to default	ALM LED turns off after 5 seconds - after restart they will cycle
12second then release	Clears ALL RAM plus SYSTEM KEY and PASSWORD to factory defaults (total overwrite and wiped clear)	ALM and SEC turn on after 12 seconds - after restart they will cycle

3. REAR PANEL

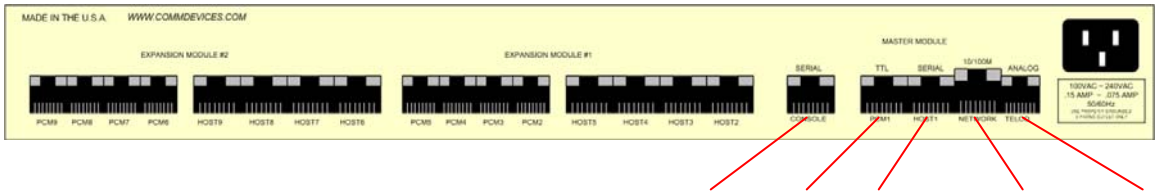


Figure 8 PA199 rear panel

3.1.1 Communication Ports

There are 5 types of communication ports on the PA-199.

1. Telco RJ11; Analog telephone circuit; 1 Per device
2. Network RJ45; Ethernet 10/100 TCP/IP circuit ; 1 per device
3. Serial Console RJ45; Serial RS232 laptop connection; 1 per device
4. Serial Host RJ45; Serial console of router, firewall, etc,, to be managed; up to 9 per device
5. PCM , Power Control Module; TTL port for connection to individual Power Control Modules; up to 9 per device

3.1.2 Host Communication SERIAL Ports (DCE) HOST1 – HOST9

The Host Communication Ports consist of RJ45 connector(s) for SERIAL connection to various devices that need to be accessed remotely. The Ports are configured as DCE (Data Communications Equipment: modem ports) for direct connection to DTE (Data Terminal Equipment)*. The default active high RS232 Control Signal is CTS (Clear To Send). DCD (Data Carrier Detect) Is active when the port is selected via logon menus. RTS (Request To Send) and DTR (Data Terminal Ready) originate in the Host equipment. The default communication parameters are 9600 baud 8 data bits and no parity. If the host is connected and cabled correctly, you should see the DTR LED on the front panel for that respective port.

CDI PA100 CNSL RJ45 DCE PINOUTS

	PA-100	CNSOLE	RJ45
Pin	Function	Direction	DB9
1	RTS	OUT	7
2	DTR	OUT	4
3	TX	OUT	3
4	GND		5
5	GND		
6	RX	IN	2
7	DCD	IN	1
8	CTS	IN	8

RJ45 (8 PIN MODULAR) PINOUT

Figure 9 RJ45 Socket Connector Pinouts

Cabling for Host Communication Ports

A twelve-foot, eight pin silver satin cable with an RJ45 male plug on each end is supplied. This is for connection to the Host Communication port of the Port Authority and the Host Device using the RJ45/DB9F connector and if required the DB25F/DB9M adaptor. Application specific cables can be purchased for direct connection to popular manufactures like Cisco, Net Screen, Juniper, etc.

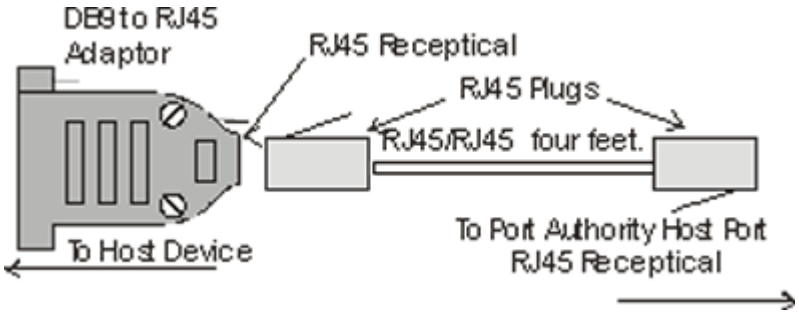


Figure 10 DB9 adapter

3.1.3 Connecting an Output Port to a DCE

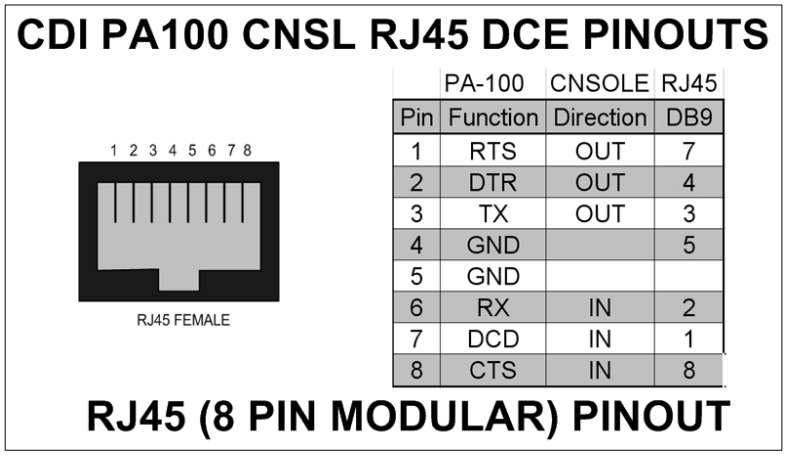
The Output ports are all configured as DCE; they "look like" modems. The normal connection for this type of port is to a DTE, a terminal. Using a "Null Modem" adapter, or a Null Modem cable can make connections of any of these output ports to a DCE device. Adapter connections shown here are for the DB9 type as well as the DB25 type:

DB9F Pin	DB9M Pin		DB25 F Pin	DB25 M Pin
2	3		2	3
3	2		3	2
7, 8	1		4, 5	8
1	7, 8		8	4, 5
6	4		6	20
4	6		20	6
5	5		7	7

NOTE: The reverse is also true: The null modem can be used when connecting a DTE port (if so equipped) to another DTE port. In other words, use a null modem when connecting any two ports of the same configuration.

3.1.4 Console Port Pinout

The console port is configures as a DTE, asserting DTR and RTS and looking. to connect to a DCE. An RJ45-DB9 connecter is provided to attach this console port t a PC serial port for local simple config such as IP address, Gateway, etc…



	PA-100	CNSOLE	RJ45
Pin	Function	Direction	DB9
1	RTS	OUT	7
2	DTR	OUT	4
3	TX	OUT	3
4	GND		5
5	GND		
6	RX	IN	2
7	DCD	IN	1
8	CTS	IN	8

Figure 11 Console Port pinout

3.1.5 Power Control Module Ports

A group of up to nine RJ11 connectors is used to control up to nine Power Ports. The Power Modules are used to power cycle the remote devices that may have become inoperative. This will reset the device and usually restore operation. Power Ports can also be used to shut down (turn off the power to) a device that should not be operating. The power can also be restored to a Power Module that has been turned off.

Figure 12 PCM

Figure 13 PCM

3.1.6 Cable connection for Power Modules

The cable connections to the Power Module consist of a crossed 4-wire cable with an RJ11 (4P4C) at each end.

Pin		Pin
1	----------	4
2	----------	3
3	----------	2
4	----------	1

3.1.7 TELCO Port

The TELCO (Telephone Company) port (RJ11 4 wire) is used to connect the telephone line to the internal modem.

3.1.8 Network Port

The Network port is a RJ45 connector for connection to a 10/100 Ethernet TCP/IP Network.

3.1.9 SERIAL Port

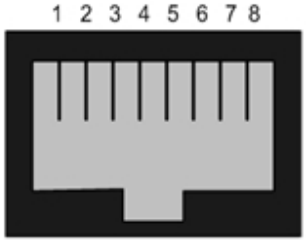
The SERIAL Port contains an RJ45 connector with eight positions and eight conductors. The function of this port is to configure the device locally or remotely using the Out of Band Manager (OBM) software. This Port is configured as DTE for direction to a dumb terminal. The default active high RS232 Control Signals are RTS (Request to send), and DCR (Data Terminal Ready). The default communication parameters are 9600,8,N.

When the Port Authority is configured (with the OBM) as a Slave unit, the SERIAL port will be connected to the Master Port Authority Host port that has been defined for connection to this Slave unit Installation.

3.1.10 SERIAL Port Cabling

The pin connections on the RJ45 connector are:

CDI PA100 HOST RJ45 DCE PINOUTS



RJ45 FEMALE

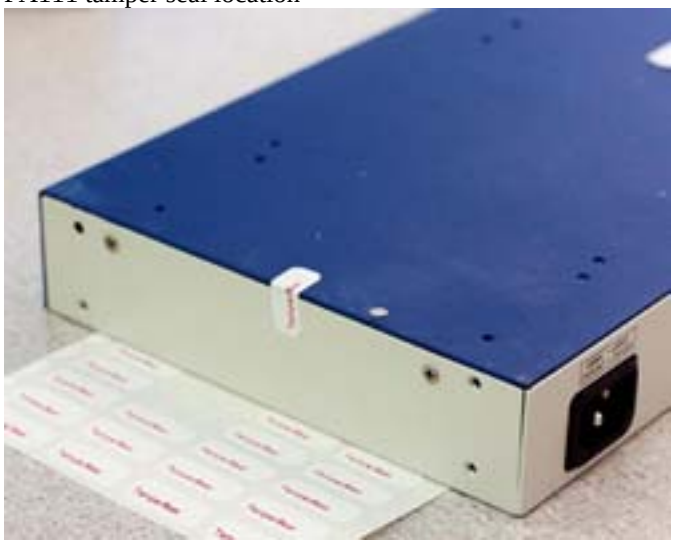
	PA-100	HOST	RJ45
Pin	Function	Direction	DB9
1	RTS	IN	7
2	DTR	IN	4
3	TX	IN	3
4	GND		5
5	GND		
6	RX	OUT	2
7	DCD	OUT	1
8	CTS	OUT	8

RJ45 (8 PIN MODULAR) PINOUT

4. Tamper Seals and Switches

4.1 Tamper Seal locations and function.

PA111 tamper seal location



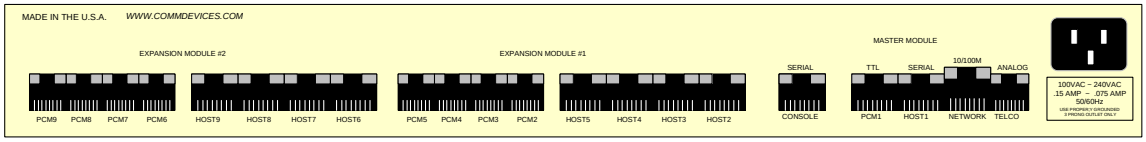
Tamper seals are located at the bottom side edges of each device, installed at the midpoint from the front to the back at the midline of the seal.

The purpose of the tamper seal is to show evidence if the device is opened or “tampered” with. The seal will be broken at the junction of the cover (white) and the base (blue). If the seal is not continous then the device has been tampered with and the security officer should be informed.

There are internal tamper switches in the device which will “zero out” or “erase” any secure credentials stored in the device if the cover is removed. The device will need to be re-configured with security keying information before it can be used.

5. Power Supply

The Port Authority PA111, PA155, & PA199 have an IEC 14 connector which will accept a standard IEC 13 power cord. The device uses .15AMP @ 110VAC and .075AMP @ 240VAC.



6. Environmental

- Operating temperature: 0º Celsius to 45º Celsius (32º Fahrenheit to 113º Fahrenheit)
- Storage temperature: -20º Celsius to 70º Celsius (-4º Fahrenheit to 158º Fahrenheit)
- Operating humidity: 10% to 85%, non-condensing
- Storage humidity: 5% to 90%, non-condensing
- Operating altitude: up to 10,000 ft (3049 m)
- Storage altitude: up to 15,000 ft (4573 m)
- Voltage Parameters 100~240VAC .2~.1Amp 50/60Hz
- Power consumption .2 Watts

7. Installation

Figure 14 Install Sheet 1

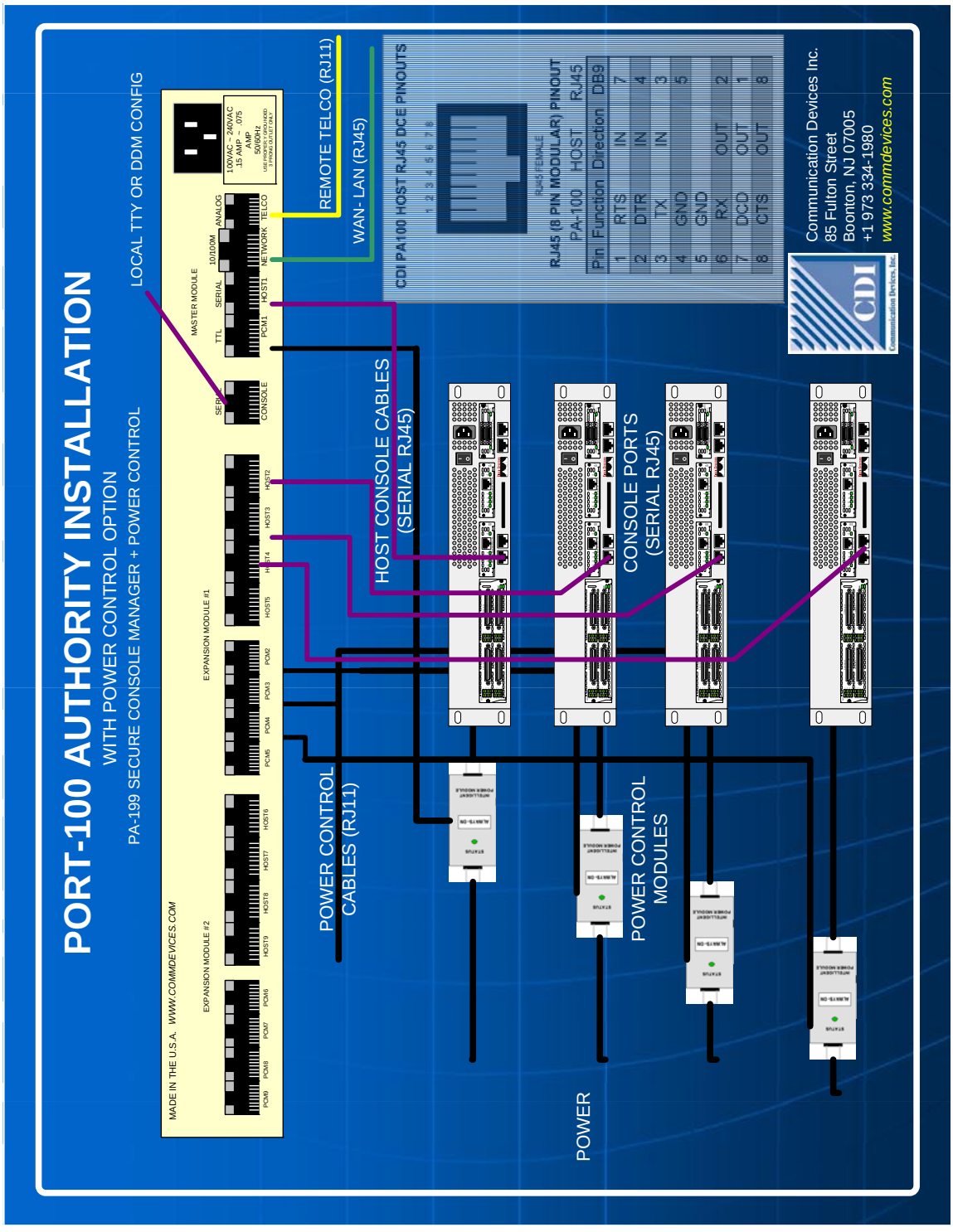


Figure 15 Install Sheet 2

