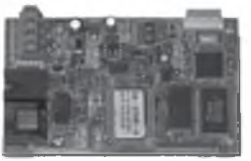
CDV Group

TCP/IP MODULE CA-ETHR-A
INSTALLATION MANUAL



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Introduotion

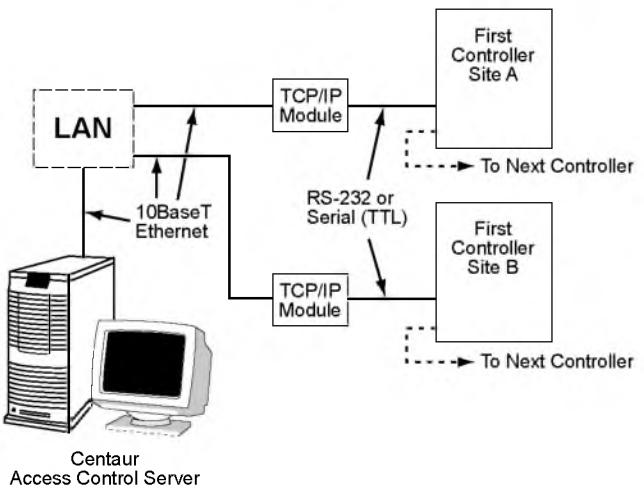
The CA-ETHR-A TCP/IP module serves as an interface between a device that uses serial communications (serial device) and a Local Area Network (LAN).

By connecting serial devices to the TCP/IP module, the serial devices can communicate with other devices over a LAN using the IP protocol through a TCP data channel.

Although optimized for use with CDV Group products, this module can be used with other serial devices. Below is a list of some types of serial devices that are supported:

- Centaur CT-V900-A controller
- Time and Attendance Clocks and Terminals
- Security and alarm systems
- CCTV equipment

Figure 1: *Example of a Typical Application*



Hardware Components

The foilowlng is a iist of hardware oomponents inoiuded with the CA-ETHR-A TCP/IP module:

- Plastic oover
- Ethernet board
- DB9 to moduiar phone jack oable
- 5- to 5-pin moiex oable

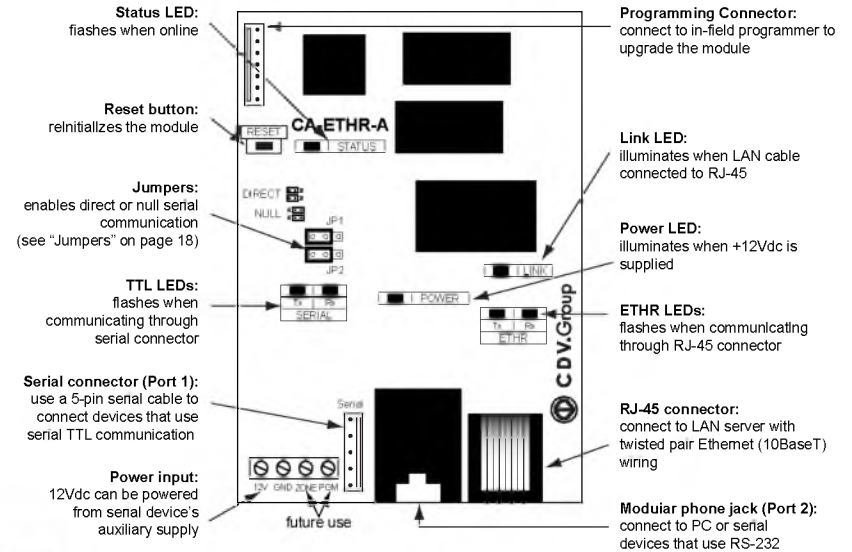
Teohnioal Speeifioations

Serial RS-232 Interface	Modular phone jack, requires a DB-9 to modular phone jack oable
Network Interface	RJ-45 connector, requires a 10Base-T Ethernet cable
Protoools Supported	TCP/IP, HTTP, ICMP and ARP
Baud Rates	9600, 19200 and 38400
Serial Line Format	Characters: 8 data bits Stop bit: 1 Parity: none
Compatlbillty	Ethernet: Version 2.0/IEEE 802.3
Support	10 MBPS - Half dupiex
Reset	PCB mounted push button
Power	12Vdc
Current Consumption	80mA max.
PCB Dimensions	10cm X 6.4cm (4” X 2.5”) fits into controller’s metal box
Temperature	5°C to 55°C (41°F to 131°F)
Hardware Compatlbillty	CT-V900-A controller

POB Overview

Figure 2 below provides a basic overview of the PCB module:

Figure 2: *PCB Overview*



Do not apply power to both the Serial connector and the 12Vdc Power Input at the same time.

The PGM output and Zone input are reserved for future use.

Problems?

If you experience any problems during the installation or use of this module, contact our technical support team at 1-866-610-0102. From outside the US or Canada call (450) 682-7945 or logon to CDV Americas Web site at www.cdvamericas.com

Configuring the Module

Before using the TCP/IP module, you must configure it to communicate on a LAN. The module can be configured by one of two methods:

- Using a commercial serial communication program, such as HyperTerminal, to access the module's serial port (refer to " Configuring Via Serial Port" below).
- Using a standard Web browser to access the module's internal Web pages (refer to " Configuring Via Web" on page11" on page).

To configure the module through its internal Web pages, you must first set the module's Local IP Address through its serial port.

Configuring Via Serial Port

To configure the module using a commercial serial communication program, such as HyperTerminal, follow the steps detailed below. **The first time you configure the module, you must use this method.** To configure the module using its internal Web pages, refer to " Settings and Menus" on page19.

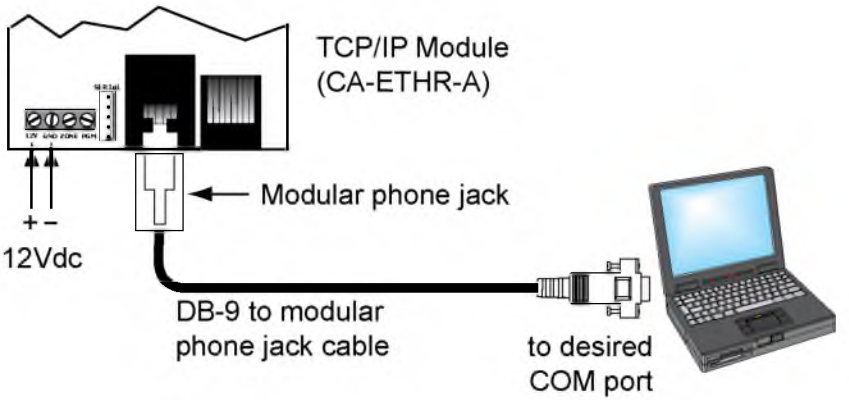
Although these steps refer to HyperTerminal, you can use any serial communication program that supports the same parameters.

Step A - " `Hardware Connections`" (see below)
Step B - " `Set up HyperTerminal`" (page)
Step C - " `Start Communication`" (page)
Step D - " `Configure the Module`" (page)

Step A - Hardware Connections

To configure the TCP/IP module via its serial port, you must connect the module to a computer's COM port. Refer to Figure page6 on page and to the instructions that follow:

Figure 3: *Serial Communication*



1) Apply 12Vdc to the terminals labeled **12V** and **GND** on the TCP/IP module. Power can be supplied from the auxiliary output of the serial device (i.e. controller) or from a separate power supply.

2) Connect the DB-9 to modular phone jack cable between the modular phone jack on the TCP/IP module and an available COM port on your computer.

Step B - Set up HyperTerminal

The flrst time you connect using this method you must set up HyperTerminal. If you have already set up HyperTerminal, go to " Start Communication" on page8".

1) Click **Start**, point to **Programs**, point to **Accessories**, point to **Communications** and then click **HyperTerminal**.

2) The Connection Description dialog box appears.

In the **Name** text box, type a descriptive name such as *Configuring TCP_IP Module*. Select the desired icon and click **OK**.

3) The Connect To dialog box appears.

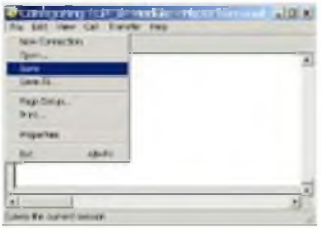
From the **Connect using** list, select the COM port that the TCP/IP module is connected to and click **OK**.

4) The COM Properties dialog box appears.

From the **Bits per second** list, select **19200**. From the **Data bits** list, select **8**. From the **Parity** list, select **None**. From the **Stop bits** list, select **1**. From the **Flow control** list, select **None**. Click **OK**. All settings in the COM Properties dialog box must match the TCP/IP module's settings. If you modify the module's settings after performing these steps, make sure to edit HyperTerminal's COM port settings.

5) The HyperTerminal window appears.

From the menu bar, click **File** and then click **Save**.



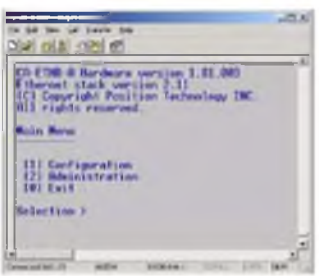
Step C - Start Communication

Once HyperTerminal is set up, you must establish communication between the TCP/IP module and the computer.

1) Make sure the HyperTerminal window is open. If not, click **Start**, point to **Programs**, point to **Accessories**, point to **Communications**, point to the **HyperTerminal** folder and select the name created in Step B.

2) Press the **Reset** button on the TCP/IP module, wait two seconds and type the word **postech** using your computer's keyboard. If you wait more than 5 seconds after pressing the **Reset** button, you will not be able to establish communication.

3) The TCP/IP module's Main Menu appears.

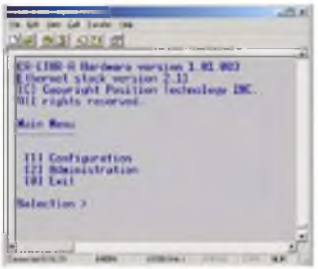


Step D - Configure the Module

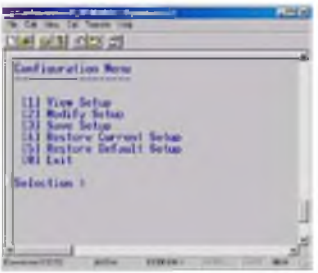
After accessing the TCP/IP module's Main Menu, use the number keys on your computer's keyboard to access the different menus. If there is no activity for a period of 4 minutes, the module exits its serial port menu.

For more detailed explanations of the different settings and menus, refer to " Settings and Menus" on page19".

1) From the Main Menu, press **1** on your computer's keyboard to access the Configuration Menu.



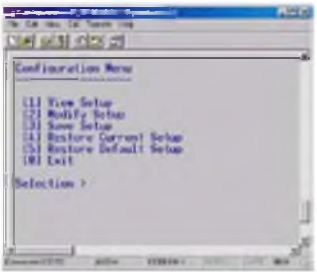
2) Press **2** on your computer's keyboard to modify the module's settings.



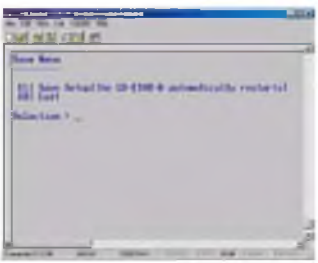
3) The module's current values will appear one at a time. Type a new value and press **[ENTER]** on your computer's keyboard. If you want to keep the current value, press **[ENTER]** without typing a value. Repeat these steps until all settings are programmed. When finished, press the **[SPACE]** bar to exit this menu.

By default the serial port is 2. If you need to use the 5-pin serial connector (port 1) to connect the TCP/IP to the serial device (refer to " Hardware Connections" on page15" on page), do not change the value of the serial port now. You will be able to select port 1 later, after accessing the module's Web page. This allows you to make sure that the module was configured properiy and that you can access it through the Web.

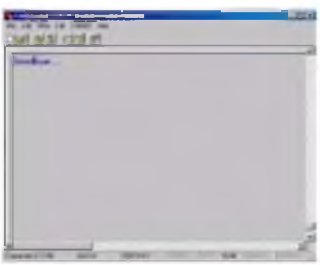
4) Any modified settings must be saved. From the Configuration Menu, press **3** on your computer's keyboard.



5) Press **1** on your computer's keyboard to save.



6) The module will restart and stop communication with HyperTerminal. The TCP/IP module is now programmed and ready for use. To make sure that the module was configured properly, view the module's Web page as explained in " Configuring Via Web" on page11" on page .



Configuring Via Web

To configure the TCP/IP module using a standard Web browser, such as Microsoft Internet Explorer, follow the steps detailed below. To configure the module through its serial port, refer to " Configuring Via Serial Port" on page5".

Although the following steps refer to Internet Explorer, you can use any standard Web browser that supports the same parameters.

Step A - " `Set IP Address Via Serial Port`" (see below)
Step B - " `Hardware Connections`" (see below)
Step C - " `Access the Module's Web Page`" (page)
Step D - " `Configure the Module`" (page)

Step A - Set IP Address Via Serial Port

In order to access the TCP/IP module's internal Web pages, the module must have a Local IP Address. The first time you assign a Local IP Address, it must be done through the serial port menu as detailed in " Configuring Via Serial Port" on page5".

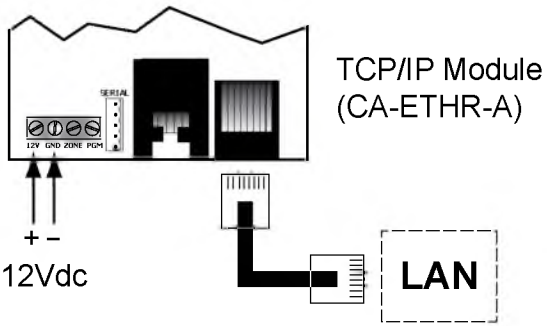
Step B - Hardware Connections

To configure the TCP/IP module via Web, you must connect it to the LAN. If the module is already connected to the LAN as detailed in " Hardware Connections" on page15" on page , you can proceed to the next step. Otherwise, refer to Figure page12 on page and follow these instructions:

1) Apply 12Vdc to the terminals labeled **12V** and **GND** on the TCP/IP module. Power can be supplied from the auxiliary output of the serial device (i.e. controller) or from a separate power supply.

2) Connect a twisted palr Ethernet wire (10BaseT) between the TCP/IP module's RJ-45 network connector and the LAN.

Figure 4: *Web Connections*



Step C - Access the Module's Web Page

Once a Local IP Address is assigned to the TCP/IP module and the module is connected to the LAN, you must establish communication between the module and a computer on the LAN.

1) From a computer connected to the LAN, open Internet Explorer.

2) In the **Address** bar, type the TCP/IP module's Local IP Address and press **[ENTER]** on your computer's keyboard. A Login window appeare. Do not type any of the zeros at the start of each set of 3 digits. For example, if the Local IP Address is 010.010.020.003, you would type 10.10.20.3.

3) In the **Password** text box, type your password and click **Login**. The default password is **admin**. Refer to " Password" on page22".

Step D - Configure the Module

Once you have accessed the TCP/IP module's internal Web pages, configure the module using the available menus. To save the changes, click **Apply** before selecting a different tab.

1) By default, the window displays the **Network Settings** tab. Make any necessary changes and click **Apply**. If you do not click **Apply**, changes will not be saved when you change tabs.

For more detailed explanations of the different settings and menus, refer to " Settings and Menus" on page19" on page . When you click ***Apply***, the module automatically resets, the Login window appears and a list of what was changed appears.

2) Select the **COM Settings** tab and make any necessary changes. If you need to use the 5-pin serial connector (port 1) to connect the TCP/IP to the serial device (refer to " Hardware Connections" on page15" on page), you can now select port 1. Click **Apply**.

3) Select the **Security** tab, make any necessary changes, and click **Apply**.

4) Select the **Admin** tab. In the **Password** text box, type your password and click **Apply**.

5) When you are done, click **Logout**.

6) Close your Web browser.

Hardware Conneotions

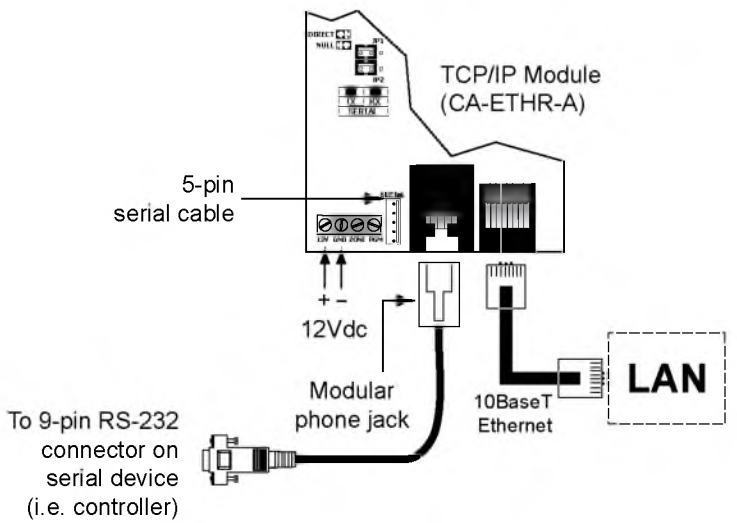
The following sections provide an overview of the TCP/IP module and details on how to connect it between a serial device and a LAN.

A special connection method is required when configuring the module through its serial port. Refer to " Configuring Via Serial Port" on page5".

Conneoting Between LAN and RS-232 Device

This connection method enables you to connect the TCP/IP module to a serial device's DB-9 connector (RS-232 serial port). For example, you can connect to the serial port of a Centaur CT-V900-A controller. The standard connection requires the use of a DB-9 to modular phone jack cable. Refer to Figure below and to the instructions that follow:

Figure 5*: Standard Connections*



1) Apply 12Vdc to the terminals labeled **12V** and **GND** on the TCP/IP moduie.

2) Conneot the DB-9 to moduiar phone jaok oabie between the moduiar phone jaok on the TCP/IP module and the serial device's DB-9 connector (refer to Table below).

3) Conneot a twisted pair Ethernet wire (10BaseT) between the TCP/IP module's RJ-45 network oonneotor and the LAN.

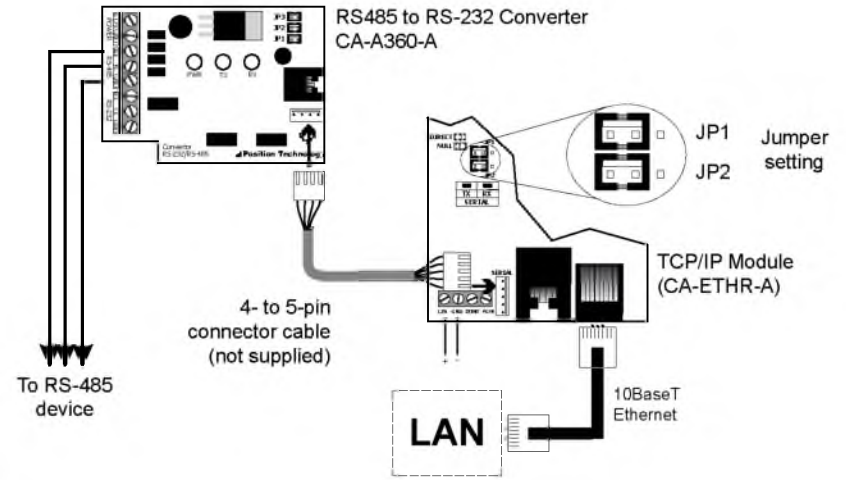
Table 1: *DB9 to Phone Jack Pin-Out Connections*

Pin #	DB9 Conneotor	Phone Jaok Conneotor
1	NC	NC
2	RX	NC
3	TX	NC
4	NC	GND
5	GND	RX
6	NC	TX
7	NC	NA
8	NC	NA
9	NC	NA

Ccnnecting Between LAN and RS-485 Device

This oonneotion method enabies you to oonneot the TCP/IP moduie to a devioe that uses the RS-485 standard. For example, you can oonneot to another CA-A360-A RS-232 to RS-485 Converter to expand the distanoe between the TCP/IP moduie and the seriai devioe or to oonneot the TCP/IP moduie to a devioe using the RS-485 oommunioation standard. Refer to Figure page17 on page and to the instruotions that foiiow:

Figure 6: *RS-485 Connections*



If you apply 12Vdc to the TCP/IP module, do not connect the +12V and GND terminals on the CA-A360-A.

1) Set the jumpers to "Direct" as shown in Figure . For more information on Direct Connections, see " Jumpers" on page18" on page .

2) Apply 12Vdc to the terminals labeled **12V** and **GND** on the TCP/IP module.

3) Connect a 4- to 5-pin connector cable (not supplied) from the RS-232 to RS-485 Converter (CA-A360-A) to the connector labelled **SERIAL** on the TCP/IP module.

4) Connect a twisted pair Ethernet wire (10BaseT) between the TCP/IP module's RJ-45 network connector and the LAN.

5) Connect the RS-232 to RS-485 Converter (CA-A360-A) to any RS-485 device.

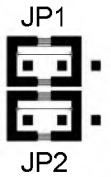
Jumpers

The CA-ETHR-A TCP/IP Module has two on-board jumpers which allow you to select whether the communication between the TCP/IP module and a serial TTL device is null or direct. These jumpers only affect the serial TTL connector (port 1).

Direot Conneotion

If you need a direct connection between the TCP/IP module and a serial TTL device, set the jumpers as shown in Figure :

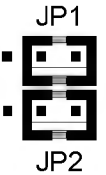
Figure 7: *Direct Communication*



Null Conneotion

If you need a null connection between the TCP/IP module and a serial TTL device, set the jumpers as shown in Figure :

Figure 8: *Null Communication*



Settings and Menus

The TCP/IP module settings listed in the following sections can be configured using one or both of these methods.

- " Configuring Via Serial Port" on page5" on page
- " Configuring Via Serial Port" on page5"Configuring Via Web" on page11"

Looal IP Address

This is the Internet Protocol (IP) address of a device communicating on a LAN. Each TCP/IP module must have a unique Local IP Address. The address entered must be recognized by the LAN and must not be used by another device. A Local IP Address is entered as four sets of three digits (000-255) separated by periods (i.e. 206.104.032.006). **Speak to your Network Administrator about obtaining an IP address.**

Serial Port: Yes (Menu [1], [2])
Web Page: Yes (Network Settings tab)

The first time you set the module's Local IP Address, you must do so using the serial port method as described in " Configuring Via Serial Port" on page5".

Looal Port Number

The Local Port Number is assigned to the data transfer application program that communicates through the TCP/IP module's physical serial connector for initiating remote connections with the LAN. Enter a value between 0 and 65535. Do not use Well-Known Ports, which are port numbers used by everyone. For example, port 80 is used for HTTP traffic (Web traffic). **Speak to your Network Administrator about obtaining a port number.**

Serial Port: Yes (Menu [1], [2])
Web Page: Yes (Network Settings tab)

Subnet Mask

Whenever the TCP/IP module wants to communicate with another device on the LAN, it will compare its Local IP Address with that of the device. The result is then matched with the assigned Subnet Mask number to determine

whether the device's IP Address belongs to the same subnet (LAN segment) as the moduie. If not, data wiii be direoted towards the Gateway Address (see below) to redireot the data to the oorreot subnet via a router. A Subnet Mask is entered as four sets of three digits (000-255) separated by periods. A common Subnet Mask number is 255.255.000.000. **Speak to your Network Administrator about obtaining a Subnet Mask number.**

Serial Port: Yes (Menu [1], [2])
Web Page: Yes (Network Settings tab)

Gateway Address

The Gateway Address enabies the TCP/IP moduie to oommunioate with other LAN segments. Enter the Looai IP Address of the router oonneoted to the same LAN segment as the TCP/IP moduie. The Gateway Address must be within the local network. A Gateway Address is entered as four sets of three digits (000-255) separated by peńods (i.e. 206.104.032.006). **Speak to your Network Administrator for more information.**

Serial Port: Yes (Menu [1], [2])
Web Page: Yes (Network Settings tab)

Baud Rate

This vaiue represents the signaiiing rate of a iine, whioh is the number of transitions (voltage or frequency changes) that are made per seoond. It is important that you set the Baud Rate to the same vaiue as the seriai devioe oonneoted to the moduie. By default the module is set to 19200. The TCP/IP module supports the following Baud Rates: 9600, 19200 and 38400.

Serial Port: Yes (Menu [1], [2])
Web Page: Yes (COM Settings tab)

Packets

A paoket is a biook of data received from the seriai devioe oonneoted to the TCP/IP module. These settings define when the packet is sent to the LAN.

Serial Port: Yes (Menu [1], [2])
Web Page: Yes (COM Settings tab)

Packet Delay

if the idle period (no activity) between each character is equivalent to the programmed Paoket Delay, then the module sends the serial data ourrently in the buffer to the LAN. Enter a value between 1 and 255ms. if you set the value to 0 this feature is disabled. The default value is 3ms. The Packet Delay is directly related to the baud rate. When used with CDV Group controllers, we recommend the following values:
if Baud Rate = 9600, set Packet Delay to 6ms
if Baud Rate = 19200, set Packet Delay to 3ms
if Baud Rate = 38400, set Packet Delay to 2ms

Packet Size

When the data received is equivalent in bytes to the programmed Packet Size, the module sends the serial data in the buffer to the LAN. Enter a value between 1 and 458 bytes. if you set the value to 0, this feature is disabled. The default value is 0 (disabled).

Aoknowledgement Delay

When the TCP/iP module receives a packet from the LAN, it must acknowledge receipt, otherwise the LAN oontinues to send the same paoket. In order to save bandwidth, the aoknowledgement oan be sent on the LAN with a paoket received on its serial port. If, after recelving a paoket from the network, no data is received on the serial port, the module sends the aoknowledgment after the programmed Aoknowledgment Delay. If data is received on the serial port within the Aoknowledgment Delay, the module ignores the delay and waits until the entire paoket is received. The aoknowledgment will then be sent on the LAN with the paoket received on its serial port. Enter a value between 1 and 255ms. To send the aoknowledgement as soon as a paoket is received from the rietwork, set the value to 1ms. The default value is 100ms.

Serial Port: Yes (Menu [1], [2])
Web Page: Yes (COM Settings tab)

Serial Port

The serial port is the port used to connect the TCP/IP module to the serial device. Serial port 1 refers to the 5-pin serial (TTL) connector while serial port 2 refers to the modular phone jack connector on the TCP/IP module (see Figure page4 on page).

Serial Port: Yes (Menu [1], [2])
Web Page: Yes (COM Settings tab)

Remote IP Address

Only a device on the LAN whose Local IP Address matches that of the TCP/IP module's Remote IP Address will be able to communicate with the module. If the IP Addresses do not match, no data transfer will occur. To disable this feature, enter 0.0.0.0. For more information on IP Addresses, go to page .

Serial Port: Yes (Menu [1], [2])
Web Page: Yes (Security tab)

Remote Port Number

Only a device on the LAN whose Local Port Number matches that of the TCP/IP module will be able to communicate with the module. If the Port Numbers do not match, no data transfer will occur. To disable this feature, enter 0. For more information on Port Numbers, go to page .

Serial Port: Yes (Menu [1], [2])
Web Page: Yes (Security tab)

Password

Allows you to password protect the TCP/IP module's internal Web pages for configuring the module (refer to " Access the Module's Web Page" on page12" on page). The password is case sensitive and can be up to eight characters. The default password is **admin**.

A password is not required when accessing the Serial Port Menu via the RS-232 serial port.

Serial Port: Yes (Menu [2], [1])
Web Page: Yes (Administration tab)

Menus

Various other menus and options are available when configuring the TCP/IP module.

Save

When configuring the TCP/IP module through the serial port, you must access this menu to save any changes that were made, otherwise any changes you have made will not be applied.

Serial Port: Yes (Menu [1], [3])
Web Page: No

Restore Current Setup

When configuring the TCP/IP module via serial port, you can restore the last saved settings of the module.

Serial Port: Yes (Menu [1], [4])
Web Page: No

Restore Default Setup

Use this feature to restore the TCP/IP module's default settings. Refer to Table for a list of the module's default settings.

Serial Port: Yes (Menu [1], [5])
Web Page: Yes (Administration tab)

Table 2: *TCP/IP Module's Default Settings*

Local IP Address	000.000.000.000
Local Port Number	00000
Subnet Mask	000.000.000.000
Gateway Address	000.000.000.000
Baud Rate	19200
Packet Delay	3ms
Packet Size	000
Acknowledgment Delay	100ms
Remote IP Address	000.000.000.000
Remote Port Number	00000
Password	admin
Serial Port	Port 2

Advanced

This menu enables you to update the module's internal Web pages after the module has been upgraded through the **Programming Connector** (refer to Figure 2 on page 5). **Contact your distributor or CDV Americas before using this menu.**

Serial Port: Yes (Menu [2], [2])
Web Page: No

WARRANTY

CDV Group ("Seller") warrants its products to be free from defects in materials and workmanship under normal use for the period of one year. Except as specifically stated herein, all express or implied warranties whatsoever, statutory or otherwise, including without limitation, any implied warranty of merehantability and fitness for a partioular purpose, are expressly exoluded. Beoause Seller does not install or oonneot the produots and beoause the produots may be used in oonjunotion with produots not manufaotured by Seller, Seller oannot guarantee the performanoe of the seourity system and shall not be responsible for oiroumstanoes resulting from the produot's inability to operate. Seller obligation and liability under this warranty is expressly limited to repairing or replacing, at Seller's option, any produot not meeting the specifications. Returns must include proof of purehase and be within the warranty period. In no event shall the Seller be liable to the buyer or any other person for any loss or damages whether direot or indireot or consequential or incidental, including without limitation, any damages for lost profits, stolen goods or claims by any other party, oaused by defeotive goods or otherwise arising from the improper, inoorreot or otherwise faulty installatlon or use of the merohandise sold.

Notwithstanding the preceding paragraph, the Seller's maximum liability will be striotly limited to the purehase price of the defective produot. Your use of this produot signifies your aooeptanoe of this warranty.

BEWARE: Dealers, installers and/or others selling the produot are not authorized to modify this warranty or make additional warranties that are blnding on the Seller.

For technical support in Canada or the U.S., call 1-866-610-0102.
For technical support outside Canada and the U.S., call 00-1-450-682-7945,
Monday to Friday from 8:00 a.m. to 8:00 p.m. EST.
Piease feei free to visit our website at

www.odvamerioas.oom

CDV. Americas
ACCESS CONTROL SYSTEM MANUFACTURER

1645A Autoroute Laval West (Quebec) H7L 3W3 CANADA
Tel.: (450) 682-7945 • Fax: (450) 682-9590