Networking ALPHA signs with ALPHA Ethernet Adapters

This document explains how to use ALPHA Ethernet Adapter serial servers to network ALPHA signs over an Ethernet Local Area Network (LAN). To send messages, you can use AlphaNET plus for Windows or Smart Alec software.

NOTE: Installation and setup for this product requires a network-literate Information Systems professional.

NOTE: AlphaNET plus for Windows is compatible with Windows 3.1, Windows 95, and Windows NT. Smart Alec 1.8 is compatible with Windows 95 and Windows NT. Smart Alec 2.1 is compatible with Windows 95, Windows 98, and Windows NT.
Why use serial servers?

A serial server is an electronic device that provides Ethernet connections for signs and other serial devices by converting serial data to and from Ethernet format.

A serial server is an economical way to add ALPHA signs to an existing LAN. Instead of running separate cabling to create a sign network, ALPHA signs can be attached to an existing Ethernet LAN using serial servers. This allows you to communicate with ALPHA signs across the room or around the world.

Why use ALPHA Ethernet Adapters?

TCP/IP compatibility

The ALPHA Ethernet Adapter supports a variety of TCP/IP features, including Telnet. The Telnet terminal protocol is an easy-to-use interface that creates terminal connections to any network host supporting Telnet.

Connectivity

The serial server connects devices directly to the Ethernet network, which conserves physical ports on the host, allows the terminal to access more than one host, and simplifies terminal cabling.

Standard cabling and connectors from Adaptive Micro Systems can be used with the ALPHA Ethernet Adapter.

Remote Configuration

The ALPHA Ethernet Adapter can be logged into and remotely configured via network login, Telnet login to the remote console port, or EZWebCon.

Multi-protocol support and centralized management

ALPHA Ethernet Adapters from Adaptive Micro Systems and serial servers from Lantronix can be used on networks running TCP/IP, IPX/SPX, and LAT. They can be set up and managed over a network using EZWebCon and Redirector software from Lantronix.

Reloadable operating software

ALPHA Ethernet Adapters from Adaptive Micro Systems and serial servers from Lantronix are flash-ROM serial servers. Flash-ROM serial servers store their operating software permanently on-board, so they do not need to download code unless new versions become available. Serial servers can also be configured to request a downloaded configuration file at boot time.

Extensive technical support services

Technical information and telephone support, as well as the latest software, is readily available from your dealer, Adaptive Micro Systems, and Lantronix. (See “Set up locations in Smart Alec 2.1” on page 48 for details.)
Types of serial servers available

Several serial servers are available for varying circumstances.

**ALPHA Ethernet Adapter**

- Allows you to connect an ALPHA sign to a 10BASE-T TCP/IP network.
- Needs no separate power supply. It gets its power directly from an ALPHA sign. Because of this, it is suitable for most, but not all, ALPHA signs. See Valid Adaptive signs for the ALPHA Ethernet Adapter below for a list.

**MSS100**

- Allows you to connect an ALPHA sign to a 100BASE-T or 10BASE-T TCP/IP network.
- Has its own power supply, therefore is suitable for all ALPHA signs.
- Allows a computer with only serial ports to communicate via a TCP/IP network, like a modem.
- Allows non-TCP/IP-aware software (such as AlphaNET plus for Windows) to communicate with ALPHA signs on TCP/IP networks.

**MSS485**

- Allows you to connect an RS485 network of up to 256 signs to a 10BASE-T TCP/IP network.

**Valid Adaptive signs for the ALPHA Ethernet Adapter**

The ALPHA Ethernet Adapter works with the following signs:

- BetaBrite (P1026)
- 215C, 215R
- 300C series
- 4000C, 4000R series (using RS232 jumper and jack)
- 7000C series (using RS232 jumper and jack)
- Personal Priority Display (PPD)

The ALPHA Ethernet Adapter may not work with the following signs, depending on your power source and electrical configuration:

- BetaBrite (P1036)
- 210C
- 220C
- AlphaVision
- Director
Resources needed

Software

Software needed includes:

- **Smart Alec**, version 1.8 or 2.1, or
  
  **AlphaNET plus for Windows**, version 1.2

Additional software which may be needed includes:

- **Lantronix Redirector**, version B1.2/201 or better (if using **AlphaNET plus for Windows**)
- **EZWebCon**
- **Telnet**

Information on how to acquire and install additional necessary software is provided in this manual as needed. (**Telnet** is available with all Windows® operating systems.)

Hardware

Hardware needed includes:

- **ALPHA Ethernet Adapter**, *and/or*
  
  MSS100 (for either Modem mode or Local/Remote mode) with power supply and cable to PC
- **Functional sign with Smart Alec firmware chip**, *or*
  
  Functional sign with Alpha firmware chip
- **Power supply for each sign**
- **Active 10BASE-T Ethernet port**
- **Ethernet cable**
- **DB25-to-RJ11 adapter**
- **RS232 cable**
- **PC connected to the Ethernet network**
Description of the ALPHA Ethernet Adapter serial server

ALPHA Ethernet Adapter components

The primary components of the ALPHA Ethernet Adapter are shown here.

![Diagram of ALPHA Ethernet Adapter components]

RJ45 Ethernet port

LED diagnostic lights:
1. ACT (activity)
2. LNK (network link/connection)
3. PWR (power)

DB25 serial port

ALPHA Ethernet Adapter and connections

Below is a picture and description of the ALPHA Ethernet Adapter and its connections.

![Diagram of ALPHA Ethernet Adapter and connections]

RJ11 cable

DB25-to-RJ11 adapter

LED diagnostic lights

Ethemet cable
Ways to send messages using serial servers from Adaptive

Without an ALPHA Ethernet Adapter serial server, the typical way to send a message is from a PC to a sign directly attached to the PC. ALPHA Ethernet Adapter serial servers add the flexibility of linking into an Ethernet LAN to send messages. There are several ways to use an ALPHA Ethernet Adapter in a LAN.

- In the **Single server mode**, an ALPHA Ethernet Adapter sends a message from one PC through a COM port (either physical or logical) over an Ethernet LAN to an ALPHA Ethernet Adapter and on to a sign.
- In the **Modem mode**, you can use an MSS100 serial server to emulate a modem sending messages one-at-a-time to one or more signs, each with an ALPHA Ethernet Adapter attached.
- In the **Local/Remote mode**, you can use an MSS100 as a “local/host” serial server to send messages all at once to one or more signs, each with a “remote” ALPHA Ethernet Adapter attached.

General steps to set up serial servers from Adaptive

1. First, install each serial server and assign each a unique network IP address.
2. Next, set up each serial server in the LAN in one of the modes listed above.
3. Finally, set up the messaging software – also in one of the modes listed above – to direct messages through the serial servers to a sign.
For messages to be sent to the correct signs on the network, each sign must have a unique IP address associated with it. There are several methods for assigning an IP address that can be used depending on various circumstances. For some of these methods, installation of the serial server hardware must be done while assigning the IP address. For other methods, the IP address can be assigned after the serial server hardware is installed.

To assign an IP address, you will need to know two numbers:

1. The valid IP address for each serial server, either MSS100 or ALPHA Ethernet Adapter. This is usually assigned by an IS network administrator.

2. The hardware address of the serial server. This is found on a label on the back of the server.

The following methods for assigning an IP address are listed in order from the most simple and most often used to the least often used.
Installing a serial server and setting its IP address

**Method 1: EZWebCon**

EZWebCon is one of the easiest ways to identify a serial server by its Ethernet address and assign a specific IP address.

**NOTE:** EZWebCon cannot be used to set the IP address in Windows 3.1.

**Install EZWebCon software**

1. Obtain the latest version of EZWebCon (free) from the ALPHA Ethernet Adapter CD or from the Lantronix Internet site (ftp.lantronix.com/priv/ezwebcon) for your network platform. Download this into an empty directory on the PC to be used.

2. After downloading, double-click on ezwebcon.exe in that folder on the PC.

3. The EZWebCon application will be unpacked and installed on your PC.

**Detect existing ALPHA Ethernet Adapters on the network**

1. Run EZWebCon software.

2. Click on the Micro-Serial Servers icon.
3. Click on Browse in the MSS Management dialog box to search for existing ALPHA Ethernet Adapters on the network.

4. When browsing is complete, note all IP addresses returned in the Browse Network dialog box. Any IP addresses returned are existing ALPHA Ethernet Adapters hooked to the network. You will need this list for comparison later. (The only way to print this is to press the Print Screen button and then paste into a drawing, paint, or word processing application.)

Connect the ALPHA Ethernet Adapter to sign and network

5. Connect an Ethernet cable to an active port and to the RJ45 Ethernet port on the ALPHA Ethernet Adapter.
Installing a serial server and setting its IP address

6. Connect the ALPHA Ethernet Adapter to the DB25 connector.
7. Plug the RJ11 cable to the DB25 adapter.
8. Connect the other end of the RJ11 cable to a sign.
9. Connect an appropriate power supply to the sign.

**NOTE:** The ALPHA Ethernet Adapter is now powered up and connected to the network. The LNK LED (middle LED) on the ALPHA Ethernet Adapter will be lit if you have a valid 10BASE-T network connection.

10. Check the LED lights on the ALPHA Ethernet Adapter:
    - The PWR LED should be solid green.
    - The LNK LED should be solid green with a valid network connection.
    - The ACT LED should be blinking green for normal operation. If it is blinking red, there is a problem.

**NOTE:** If your network uses DHCP and DHCP is enabled on the ALPHA Ethernet Adapter, then the network DHCP server will automatically detect the ALPHA Ethernet Adapter and assign an IP address to it. In this case, you should go to Step 19 in “Use EZWebCon software to detect newly-connected Alpha Ethernet Adapter and IP address” on page 13.

**Use EZWebCon software to assign the IP address**

**NOTE:**
- If your network does not use DHCP or if DHCP is disabled on the ALPHA Ethernet Adapter, use this process (Step 11 through Step 18). (The ALPHA Ethernet Adapter comes with DHCP disabled.)
- If your network uses DHCP and DHCP is enabled on the ALPHA Ethernet Adapter, then you should go to Step 19 in “Use EZWebCon software to detect newly-connected Alpha Ethernet Adapter and IP address” on page 13.

11. Click on the Lantronix logo button on the main screen for **EZWebCon**. This will display a pop-up menu.
12. Choose Assign IP address to server.

13. Enter the Ethernet (hardware) address of the ALPHA Ethernet Adapter. This will always begin with “00-80-a3”.

HINT: This is case-sensitive and should be entered with lower-case letters, but you do not need to type the dashes.

14. Enter the new IP address.

HINT: To correctly position the nodes of the address, type both the numbers and the decimal points.

15. Leave Subnet address as “None”. Leave TFTP loadhost as zeroes or set as needed for your system. Leave Automatically connect and permanently assign the IP address checked.

16. Click OK.
17. **EZWebCon** will check to see if the ALPHA Ethernet Adapter already has an assigned IP address.

![Image of EZWebCon checking for IP address](image)

18. When EZWebCon has checked for an IP address:

- If it finds an IP address for this ALPHA Ethernet Adapter and it is the same as the one you are trying to assign, **EZWebCon** will simply tell you so. Click **OK**.

![Image of EZWebCon showing checked IP address](image)

- If it finds an IP address and it is not the same as the one you are trying to assign, **EZWebCon** will ask if you really want to assign the new address.

![Image of EZWebCon asking for confirmation](image)

- Otherwise, it will assign the new IP address and will reboot the ALPHA Ethernet Adapter.

![Image of EZWebCon assigning IP address and rebooting](image)
Installing a serial server and setting its IP address

Method 1: EZWebCon

Use EZWebCon software to detect newly-connected Alpha Ethernet Adapter and IP address

NOTE: • If your network uses DHCP and DHCP is enabled on the ALPHA Ethernet Adapter, use this process (Step 19 through Step 22).
• If your network does not use DHCP or if DHCP is disabled on the ALPHA Ethernet Adapter, you should have used the process “Use EZWebCon software to assign the IP address” using Step 11 through Step 18. (The ALPHA Ethernet Adapter comes with DHCP disabled. Call Adaptive Micro Systems’ Technical Services if you wish to enable DHCP.)

19. Click on the Refresh button in the Browse Network dialog box of EZWebCon. The purpose of this step is to search for the newly-connected ALPHA Ethernet Adapter on the network.

20. The IP address that the network DHCP server assigned to the ALPHA Ethernet Adapter should now be returned in the Browse Network dialog box in addition to any that were returned in Step 4.

NOTE: If there are no new IP addresses returned, you must either program an IP address to the ALPHA Ethernet Adapter using Telnet, or contact IS personnel with the hardware address on the back of the ALPHA Ethernet Adapter. IS can then use network management software to locate the IP address that DHCP assigned.
21. Note the IP address that the network DHCP server assigned to the ALPHA Ethernet Adapter, for use later.

   NOTE: It may be a good idea to write the IP address directly on the ALPHA Ethernet Adapter.

22. Close EZWebCon.
Method 2: Telnet

Telnet is used to program a hardware device for parameters such as baud rate, stop bits, parity, and particularly an IP address. Telnet can be used to assign an IP address directly. Telnet can also be used to “erase” an existing assigned IP address so that the **arp** command (see “Method 3: DOS/ARP command” on page 19) can assign a new IP address.

**Connect the ALPHA Ethernet Adapter to sign and network**

1. Connect an Ethernet cable to an active port and to the RJ45 Ethernet port on the ALPHA Ethernet Adapter.
2. Connect the ALPHA Ethernet Adapter to the DB25 connector.
3. Plug the RJ11 cable to the DB25 adapter.
4. Connect the other end of the RJ11 cable to a sign.
5. Connect an appropriate power supply to the sign.

**NOTE:** The ALPHA Ethernet Adapter is now powered up and connected to the network. The LNK LED (middle LED) on the ALPHA Ethernet Adapter will be lit if you have a valid 10BASE-T network connection.

**NOTE:** If your network uses DHCP and DHCP is enabled on the ALPHA Ethernet Adapter, then the network DHCP server will automatically detect the ALPHA Ethernet Adapter and assign an IP address to it.

6. Check the LED lights on the ALPHA Ethernet Adapter:

   The PWR LED should be solid green.

   The LNK LED should be solid green with a valid network connection.

   The ACT LED should be blinking green for normal operation. If it is blinking red, this indicates there is a problem.
Installing a serial server and setting its IP address

Start Telnet

Telnet is fully functional on all PCs. To use Telnet, from Start > Run, type “Telnet”. It will open a generic window for Telnet. You can also open a Telnet window for a specific ALPHA Ethernet Adapter by typing “Telnet n.n.n.n” (where n.n.n.n is the assigned IP address of the ALPHA Ethernet Adapter) from Start > Run.

Assign an IP address

1. From the Connect menu, choose Remote System… and then select or type the IP address of the serial server. Use “telnet” for the Port and “vt100” for the TermType.

NOTE: Skip this step if you opened a Telnet window for a specific ALPHA Ethernet Adapter as above in “Start Telnet”.

2. Type a username and press Enter. It doesn’t matter what you type here, except that it must be different from that used by any other Telnet user on the network.
3. The “show server” command can provide confirmation that you’ve accessed the correct ALPHA Ethernet Adapter and also provide statistics about that serial server.

4. Type “set priv”. Press Enter. Then type the password. Press Enter again. The default password is “system”.

5. You now have access to the “super user” level of authority. This is required to change the IP address.

6a. To simply delete any currently-assigned IP address, type “change ipaddr 0.0.0.0”
6b. To assign a new IP address, whether or not there is a currently-assigned IP address, type “change ipaddr n.n.n.n” (where n.n.n.n is the new IP address.)

7. You should now reboot the ALPHA Ethernet Adapter. To do this, type “id 0” with spaces between the characters. (The last character is a zero.)

8. Because the ALPHA Ethernet Adapter will no longer be at the same address as when you connected to it using Telnet, Telnet officially logs you out of that connection.

9. You then get this notification.

10. After clicking OK, and after the ALPHA Ethernet Adapter completes rebooting, you can connect to the server using the new IP address if you wish to confirm the change with the show server command. Alternatively, you can exit Telnet and send messages.
Method 3: DOS/ARP command

In a DOS window in Windows 95 and Windows NT, the arp command is a simple way to assign an IP address when none has been previously assigned. The arp command is used here in conjunction with the ping command. The ping command is used to test the connection with the ALPHA Ethernet Adapter and to determine whether the new IP address has taken effect.

NOTE: The arp command will not work if any IP address has ever been assigned to the given hardware address. The arp command will not replace an existing IP address with another IP address. You can use Telnet to change or delete an existing IP address. Refer to “Method 2: Telnet” on page 15.

Obtain new IP address(es)
1. Obtain a valid IP address for each ALPHA Ethernet Adapter. This is usually assigned by an IS network administrator.

Connect ALPHA Ethernet Adapter to sign and network
2. Connect an Ethernet cable to an active 10BASE-T Ethernet port and to the RJ45 Ethernet port on the ALPHA Ethernet Adapter.
3. Connect the DB25 adapter to the DB25 connector on the ALPHA Ethernet Adapter.
4. Connect the RJ11 cable to the DB25 adapter.
5. Connect the other end of the RJ11 cable to the sign.

NOTE: Do not connect the power cable to the sign at this time!

Set up DOS commands for assigning an IP address
6. Open up a DOS window on the PC: click on Start > Programs > MS-DOS Prompt.
7. Type “ping –t n.n.n.n” (where n.n.n.n is the IP address to be assigned to the ALPHA Ethernet Adapter) and press Enter.

   NOTE: This will continuously ping this IP address, allowing you to monitor exactly when communication to the device is established. You can stop the execution of this ping command by pressing Ctrl+c.

8. Open up another DOS window on the PC: click on Start > Programs > MS-DOS Prompt a second time.

9. Type “arp –s n.n.n.n 00-80-a3-x-x-x” (where n.n.n.n is the IP address of the ALPHA Ethernet Adapter and 00-80-a3-x-x-x is the hardware address of ALPHA Ethernet Adapter.) Do not press Enter at this time though!

   NOTE: You must first complete the next step to power up the unit before entering this command. The arp command typed here will be executed in Step 11 below.
Apply power to the ALPHA Ethernet Adapter and to the sign

10. Connect the appropriate power cable to the sign. Wait 30 seconds or until the ACT LED (top LED, closest to the DB25 serial port) turns off and on only every two seconds.

NOTE: Both the sign and the ALPHA Ethernet Adapter are now powered up and connected to the network. The LNK LED (middle LED) on the ALPHA Ethernet Adapter will be lit if you have a valid 10BASE-T network connection.

Assign the IP address

11. Press Enter at the DOS window with the “arp –s n.n.n.n 00-80-a3-x-x-x” command, which you set up in Step 9 above, to actually assign the IP address.

NOTE: Once the ALPHA Ethernet Adapter is initially powered up, you have only two minutes to assign it an IP address by pressing Enter at the DOS window with the “arp –s n.n.n.n 00-80-a3-x-x-x” command which you set up in Step 9. After two minutes, either an alternate method must be used or the ALPHA Ethernet Adapter must be rebooted by removing and reapplying power to it.

12. You can watch the DOS window which has the ping command to determine when communication has been established. A “Reply from…” response will be displayed in the window with the ping command when successful IP assignment is achieved.
13. Go to the DOS window which has the **ping** command. Stop the execution of this command by pressing **Ctrl+c**.

![MS DOS Prompt](image)

**NOTE:** The ALPHA Ethernet Adapter will not save the learned IP address permanently. The time it is saved may vary depending on how your network is set up. This **arp** and **ping** procedure is intended as a temporary measure to enable EZWebCon to communicate with the ALPHA Ethernet Adapter, or allow an administrator to **Telnet** into the ALPHA Ethernet Adapter. Once logged in, the administrator can enter the “Change IPaddress” command to make the address permanent. See also “Reserving an IP address” on page 23 for instructions on determining and reserving an IP address.
Method 4: DHCP

Dynamic Host Control Protocol (DHCP) allows a device to use a dynamic IP address assigned at boot time from an available pool of addresses.

The ALPHA Ethernet Adapter is shipped with DHCP disabled. However, if DHCP ever inadvertently becomes enabled, and if your LAN uses Dynamic Host Communications Protocol (DHCP), when the ALPHA Ethernet Adapter is re-connected to the network and powered up, DHCP will automatically assign a dynamic IP address to the ALPHA Ethernet Adapter. If you want to accept this assigned IP address and don’t need to reassign another chosen address, you will still need see “Reserving an IP address” below for instructions on determining and reserving an IP address.

Reserving an IP address

Determine the IP address

So that you can send messages to the correct IP address, a system/network administrator must use the DHCP Manager (or similar) application to locate the ALPHA Ethernet Adapter by its hardware address. The dynamic IP address is associated with the hardware address. This identification process can be involved on large networks.

Reserving the IP address

A system/network administrator can use the system/networking DHCP Manager application to set the dynamically-assigned address to a permanent lease. This will reserve the IP address as a static address for the particular hardware address. If you do not reserve the IP address, periodically DHCP will automatically reassign a new dynamic – and typically different – IP address to the ALPHA Ethernet Adapter. The result is that messages will not be delivered to the ALPHA Ethernet Adapter.

Method 5: HyperTerminal

HyperTerminal may be used when, for some reason, you cannot access the serial server from the network. In this case, you will need to program the device directly using HyperTerminal and a null DB25F- or DB9F-to-DB25F serial cable (not supplied) from the PC to the server. (For an ALPHA Ethernet Adapter, however, you will need to split out two wires to connect the MSS device to an external power supply.) You will also need to use comm settings of 9600 baud, 8N1, and flow control set to either XON/XOFF or HARDWARE. For assistance, please call Technical Support at Adaptive Micro Systems.

NOTE: HyperTerminal is fully functional on all PCs, but you may need to install it with the Add/Remove Programs icon in the Control Panel.
In the Single server mode, an ALPHA Ethernet Adapter sends a message from one PC through a COM port (either physical or logical) over an Ethernet LAN to an ALPHA Ethernet Adapter and on to a sign.

Lantronix Redirector software is used to redirect messages normally sent through a PC COM port to a sign. Redirector associates the PC COM port with a network IP address for an ALPHA Ethernet Adapter. The ALPHA Ethernet Adapter, in turn, is connected to the sign and sends the message on to the sign. In other words, Redirector intercepts messages going to the COM port and sends them over the network to the ALPHA Ethernet Adapter’s serial port and to the sign.

This mode is especially used in conjunction with AlphaNET plus for Windows software.

NOTE: The COM port you choose to use cannot be in use by any other device, for example, an internal modem. To determine which ports are in use, from Start > Settings > Control Panel, choose System and go to the Device Manager tab. In the Ports directory, determine the COM ports currently in use. The Redirector application allows up to 40 logical COM ports to be redirected. You can redirect any except those currently in use. However, AlphaNET plus for Windows only recognizes COM ports 1 through 4.

Install Redirector

1. Obtain the latest version of Redirector from the ALPHA Ethernet Adapter CD or from the Lantronix Internet site (ftp.lantronix.com/priv/redirector) for your network platform. Download this into an empty folder on the PC to be used.

2. After downloaded, double-click on redirector.exe in that folder on the PC.

3. The Redirector application will be unpacked and installed on your PC.
**Direct a COM port to a serial server (hardware)**

1. Run the Lantronix Redirector software. In the RDCfg Dialog box, click the Port Setup icon.

   ![Redirector Software](image1.png)

2. Choose an available COM port that you wish to redirect to the ALPHA Ethernet Adapter IP address. Click OK.

   ![Port Setup](image2.png)

**NOTE:** If you need to use the same COM port for other purposes, you will need to de-select the COM port in the same way as the above two step. Then quit all applications and reboot the computer.
3. Click the ADD IP button. In the IP Service Setup dialog box, enter the IP address of the ALPHA Ethernet Adapter that EZWebCon detected in the Host prompt. In the TCPPort prompt, enter “3001”, the valid number for any ALPHA Ethernet Adapter. Click OK.

4. Click Save in the RDCfg dialog box.

5. Click OK in the Config Info box.
6. Click Close in RDCfg dialog box.

7. You may need to reboot the computer. You should now be able to access the sign via AlphaNET plus for Windows and/or Smart Alec via the network.

Direct a COM port to a serial server (software)

AlphaNET plus for Windows

Setting the device and COM port

For AlphaNET plus for Windows, in the Site Editor, you must choose the COM port that you chose to be redirected to the IP address of the ALPHA Ethernet Adapter.

1. Run the Site Manager. Choose Edit > Device… Click the New button.

2. Provide a name for this ALPHA Ethernet Adapter and click OK.
Single server mode

3. Choose the correct COM port for your computer. Set the Data Format at 8N1 (8 bits, no parity, 1 stop bit.) Set the Baud Rate at 9600. Click OK.

4. If this ALPHA Ethernet Adapter will be the primary transmission device, click on the Make Default button. If this ALPHA Ethernet Adapter is the only transmission device, you must make it the default.

5. By confirming this selection, this ALPHA Ethernet Adapter will be designated the default device. Click Yes and then Close.
6. Choose the desired site (or create a new one.) Then choose Open Site from the File menu.

7. Choose the Connect Device that you just set up in the previous steps.
8. Click on the Site Info tab. Set the Address List to the serial address(es) of the sign(s). Click OK. By doing this, you can send messages to individual sign(s) in the address list.

Sending messages from AlphaNET plus for Windows

You are now ready to send messages to this sign using AlphaNET plus for Windows.

1. Send your message(s) as you normally would.

2. The Redirector will alert you that it is connecting to the ALPHA Ethernet Adapter serial server.

3. You will briefly receive this notice.

4. And this is the last notice. Normally you will not see these notices for more than a very brief time.

5. Any messages will be sent to the sign.
Smart Alec 1.8

When using Single server mode and Smart Alec version 1.8, you can access the sign as a LAN device location.

1. Create a new LAN location.

2. Assign a Name, Address List, and IP Address to this device for the ALPHA Ethernet Adapter. Then click on the Advanced button.

   ▶️ For the Address List, the address entered must match the address of the sign (e.g., address 00.)

   ▶️ For the IP address, enter the IP address assigned to the ALPHA Ethernet Adapter.

3. Click on the Properties button.

4. Type “3001” for the Service Port.

5. Choose OK until the Location is defined.

6. You are now ready to send messages to this ALPHA Ethernet Adapter site as you normally would in Smart Alec 1.8.
Single server mode

Smart Alec 2.1

When using Single server mode and Smart Alec version 2.1, you can access the sign as a terminal server.

2. Assign a Name, Description, and IP Address. Click Add.

![Add Terminal Server Interface]

For the IP address, enter the IP address assigned to the ALPHA Ethernet Adapter.

4. Complete the choices for this notification device. Choose “Terminal Server” for Interface Category and then your specific Interface Name as in Step 2 above. The Interface Port Address must be “3001”. Click Add.

![Add Alpha SA Device]

The Interface Port Address must be “3001”.

5. You are now ready to send messages to this ALPHA Ethernet Adapter destination as you normally would in Smart Alec 2.1.
Set up the MSS100 as a sending modem

**NOTE 1:** You must have programmed the MSS100 serial server with an IP address before setting it up in modem mode.

**NOTE 2:** The version of the firmware of the MSS100 serial server must be version B3.5/905 (dated 990518) or higher.

1. Choose Start > Run. Type “Telnet n.n.n.n” where n.n.n.n is the assigned IP address for the MSS100. Click OK.
2. Type a username and press Enter. It doesn’t matter what you type here, except that it must be different from that used by any other Telnet user on the network.

3. Type “set priv”. Press Enter. Then type the password. Press Enter again. The default password is “system”.

4. Type “change flow control none”. Press Enter.

5. Type “change modem emulation enabled”. Press Enter.
6. Type “show port”. Press Enter. This will show the current settings of the port. The settings will look something like this:

```
Port 1: Username: Port_1
Char Size/Stop Bits: 8/1
Parity: None
Flow Control: None
Modem Control: None
Access: Dynamic
Local Switch: None
Forward: None
Backward: None
Preferred Service: None
```

7. Repeat Step 1 through Step 6 above for all of the MSS100 serial servers to be used in modem mode.

8. Remove power from these servers and re-apply power, after which changes will be in effect. You must now proceed to “Set up sites in AlphaNET plus for Windows”, described next.

**Set up sites in AlphaNET plus for Windows**

In AlphaNET plus for Windows, in the Site Editor, you must define a device that uses the correct settings for the MSS100 to emulate a sending modem. You must also create a separate site for each of the ALPHA Ethernet Adapters that uses the new device for receiving messages.

1. Run the Site Manager. Choose Device… from the Edit menu. Click the New button.
2. Provide a name for this MSS100 device and click OK.

3. In this window, choose the appropriate settings for the MSS100. Click OK.

   - **Modem checkbox must be checked**
   - **COM port** must be the one that the MSS100 is using.
   - **Data Format** must be 8N1 (8 bits, no parity, 1 stop bit)
   - **Baud Rate** must be 9600

4. If this MSS100 will be the primary transmission device, click on the *Make Default* button. If this MSS100 is the only transmission device, you must make it the default.

5. By confirming this selection, this MSS100 will be designated the default device. Click Yes and then Close.
6. Choose **New Site** from the **File** menu.

   ![Site Manager](image)

   **NOTE**
   You must create a new site for each unique serial address on signs.

7. Specify a site name. Choose the **Connect Device** that you just set up in the previous steps. Type the **Phone Number** as “n.n.n.n:3001T” where n.n.n.n is the assigned IP address of the receiving ALPHA Ethernet Adapter. Click **OK**.

   ![Site Editor](image)

8. You are now ready to send messages to this ALPHA Ethernet Adapter site as you normally would in **AlphaNET plus for Windows**.
Local/Remote mode

In the Local/Remote mode, you can use an MSS100 as a “local/host” serial server to send messages all at once to one or more signs, each with a “remote” ALPHA Ethernet Adapter attached.

In this mode, you set one MSS100 as the local/host device. When setting up the MSS100, you assign it a fixed list of up to 12 IP addresses of ALPHA Ethernet Adapters. You set up each ALPHA Ethernet Adapter as a remote device. Then you can use the local/host device to send messages at one time to all the remote devices in the fixed list. You can also send messages to individual signs by using unique addresses for signs with the ALPHA Ethernet Adapters.

NOTE 1: You must program the MSS100 devices with IP addresses before setting them up.

NOTE 2: The version of the firmware of the MSS100 must be version B3.5/905 (dated 990518) or higher.

Set up the MSS100 to act as a local device
1. Choose Start > Run. Type “Telnet n.n.n.n” where n.n.n.n is the assigned IP address for the MSS100. Click OK.

![Image of Telnet window]

2. Type a user name and press Enter. It doesn’t matter what you type here, except that it must be different from that used by any other Telnet user on the network.

![Image of Telnet window with username entered]

3. Type “set priv”. Press Enter. Then type the password. Press Enter again. The default password is “system”.

![Image of Telnet window with password entered]

4. Type “change flow control none”. Press Enter.

![Image of Telnet window with flow control command]

5. Type “change access local”. Press Enter.

![Image of Telnet window with access command]
6. Type “change dedicated hostlist”. Press **Enter**.

7. Type “host add tcp n.n.n.n:3001T” where n.n.n.n is the IP address of an ALPHA Ethernet Adapter to be used in remote mode. Press **Enter**. Do this step for each remote ALPHA Ethernet Adapter which is to receive messages from the local MSS100.

8. Type “change autostart enable”. Press **Enter**.

**NOTE**
There is a maximum of twelve (12) remote ALPHA Ethernet Adapters, and therefore, twelve signs, that can receive messages from a local MSS100.
9. Type “show hostlist”. Press Enter. This will show the list of the remote ALPHA Ethernet Adapter IP addresses you entered.

10. Type “show port”. Press Enter. This will show the current settings of the port.

Set up ALPHA Ethernet Adapters to act as remote devices

NOTE 1: You must have programmed all the ALPHA Ethernet Adapters with IP addresses before setting them up in remote mode.

NOTE 2: The version of the firmware of the ALPHA Ethernet Adapters must be version B3.5/905 (dated 990518) or higher.
Local/Remote mode

1. Choose Start > Run. Type “Telnet n.n.n.n” where n.n.n.n is the assigned IP address for a remote ALPHA Ethernet Adapter. Click OK.

![Image of Telnet window]

2. Type a username and press Enter. It doesn’t matter what you type here, except that it must be different from that used by any other Telnet user on the network.

![Image of Telnet window with username and password]

3. Type “set priv”. Press Enter. Then type the password. Press Enter again. The default password is “system”.

![Image of Telnet window with password]

4. Type “change flow control none”. Press Enter.

![Image of Telnet window with flow control command]
5. Type “change access remote”. Press Enter.

6. Type “show port”. Press Enter. show the current settings of the port.

7. Repeat Step 1 through Step 7 above for all of the ALPHA Ethernet Adapters to be used in remote mode.

Reset and check all devices

1. Remove power from all the remote ALPHA Ethernet Adapters and re-apply power.
2. Next, remove power from all the local MSS100 devices and re-apply power.
3. Choose Start > Run. Type “Telnet n.n.n.n” where n.n.n.n is the assigned IP address for the local MSS100 devices. Click OK.
4. Enter a username and password.
5. Type “show port”. Press Enter. This will show the current settings of the port. In the settings, there is a Sessions entry. This number is the number of remote ALPHA Ethernet Adapters you set up for the local MSS100 to send messages to.

Set up sites in AlphaNET plus for Windows

In AlphaNET plus for Windows, in the Site Editor, you must define a device that uses the correct settings for the MSS100 to send messages. You must also create a site for the MSS100, using the new device.

1. Run the Site Manager. Choose Device… from the Edit menu. Click the New button.

2. Provide a name for this MSS100 device and click OK.
3. In this window, choose the appropriate settings for the MSS100. Click OK.

*COM port must be the one that the MSS100 is using.*  
*Data Format must be 8N1 (8 bits, no parity, 1 stop bit).*  
*Baud Rate must be 9600.*

4. If this MSS100 will be the primary transmission device, click on the *Make Default* button. If this MSS100 is the *only* transmission device, you *must* make it the default.

5. By confirming this selection, this MSS100 will be designated the default device. Click *Yes* and then *Close.*
Local/Remote mode

6. Choose New Site from the File menu.

7. Specify a Site Name. Choose the Connect Device that you set up for the correct MSS100 to receive messages.

8. If you want to send messages to any specific signs, set the Address List for this site to the specific sign serial address(es).

9. You are now ready to send messages as you normally would. Messages will go to the MSS100, which, in turn, will send the messages on to all the ALPHA Ethernet Adapters that it is set to send to, as shown in Step 9 on page 41. Any message will be shown only on the ALPHA Ethernet Adapter/sign with the serial address that matches the site the message is sent to.

NOTE
You must create a new site for each unique serial address on signs.
Set up locations in Smart Alec 1.8

When using Local/Remote mode and Smart Alec version 1.8, you can access the sign as a Wired device location.

1. Create a new Alpha SA Wired location.

2. Assign a Name and set the Address List to the serial address of the sign. Choose the Advanced button on this screen and the Properties button on the next.

3. Choose the correct properties for this Location. Click OK for this and the next two screens, until the Location is defined.

4. The Smart Alec administrator must then authorize the user for the new location.

5. Messages can now be sent from Smart Alec to the sign. The messages will go to all locations that the local MSS100 is set to send to. Any message will be shown only on the sign with the serial address that matches the site the message is sent to.

**NOTE**
You must create a new location for each unique serial address on signs.

For the Address List, the address entered must match the address of the sign (e.g., address 1.)

Parity must be "none".

Baud Rate must be "9600".

Data Bits must be "8".

The Connector must be set to the COM port you chose to be redirected to the IP address of the ALPHA Ethernet Adapter.
Local/Remote mode

**Set up locations in Smart Alec 2.1**

When using Local/Remote mode and Smart Alec version 2.1, you can access the sign as a Serial device location.

2. Complete the choices for this notification device interface. Click Add.

4. Choose the correct properties for this notification device. Choose “Serial” for Interface Category and then your specific Interface Name as in Step 2 above. Click Add.

5. You are now ready to send messages to this ALPHA Ethernet Adapter site as you normally would in Smart Alec 2.1. The messages will go to all destinations that the local MSS100 is set to send to. Any message will be shown only on the sign with the serial address that matches the destinations the message is sent to.

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**Notes:**
- **Baud Rate** must be “9600”.
- The **COM Port** must be set to the COM port you chose to be redirected to the IP address of the ALPHA Ethernet Adapter.
- **Data Bits** must be “8”.
- **Parity** must be “none”.
- **Stop Bits** must be “1”.
- **COM Port** must be set to the COM port you chose to be redirected to the IP address of the ALPHA Ethernet Adapter.
- **Parity** must be “none”.
- **Baud Rate** must be “9600”.
- **Data Bits** must be “8”.
- **Stop Bits** must be “1”.
- **Device Name** must be unique.
- **Device Description** is optional.
- **Device Type** must be “Serial”.
- **Interface Name** must be unique.
- **Interface Category** must be “Serial”.
- **Device Address** must be unique.
Support services

Technical information

Software is available at Adaptive’s Internet World Wide Web site

Technical information, as well as the latest Ethernet networking software, is available from the Lantronix Internet site:

http://www.lantronix.com

Technical support

For additional support, please contact your local dealer, or call the Technical Support department at Adaptive Micro Systems, Inc. at 1-800-558-7022 between the hours of 8:00 AM and 5:00 PM Central Standard Time.
Technical support