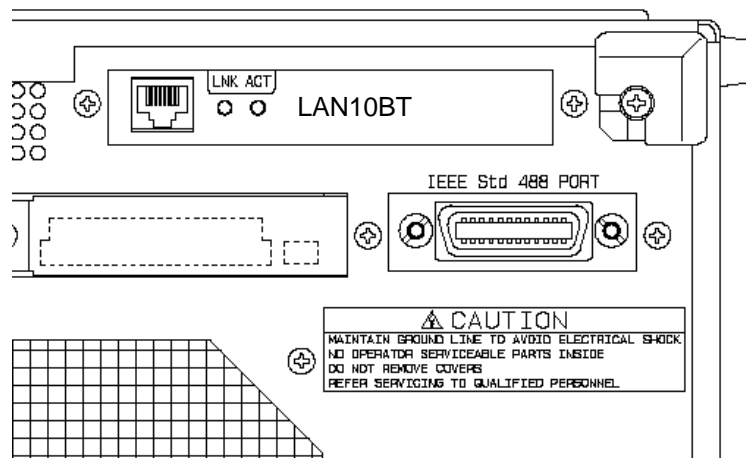


Connecting the Waverunner to its Host

This chapter describes connecting the Waverunner oscilloscope to the host PC or network over the standard 10BaseT Ethernet. Windows NT and Windows 95 operating systems are supported.

Scope Rear Panel

The LAN connector is shown in the following illustration.



- Supports IEEE 802.3 Ethernet standards
- Supports 10BASE-T
- Status LEDs:
 - LNK** shows the status of the link integrity
 - ACT** shows receive or transmit activity
- Adapted to Waverunner's small peripherals connector



Waverunner Ethernet Option

PC Requirements

For acceptable operational performance with the Waverunner oscilloscope, the following are the minimum PC requirements:

- Pentium class PC
- 32 MB RAM
- 10 MB free disk space
- Windows 95 or Windows NT
- Ethernet Adapter supporting 10BaseT, with a standard RJ45 connection

Ethernet Connection

The Waverunner oscilloscope operates over a standard 10BaseT Ethernet connection. The instrument can be plugged into a network or operated from a direct connection to a host computer. A different type of cable is required for each of these connections. For a direct connection to the PC, a *crossover* cable is required, whereas the network connection is made using a *straight* cable.

The Waverunner oscilloscope has an IP address assigned to it at the factory: it *does not* support Dynamic Host Configuration Protocol (DHCP) or any other automatic address resolution scheme. You may change this IP address to accommodate your network setting.

The factory-assigned IP address is: **172.25.1.2**

The factory-assigned Mask is: **255.255.0.0**

The factory-assigned Gateway is: **172.25.0.1**

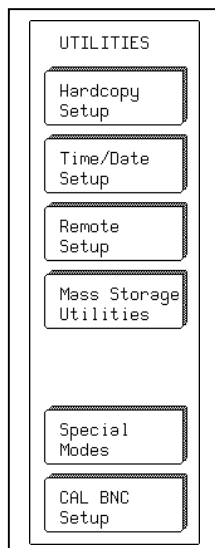
Connecting to PC or Network

Configuring Waverunner to Communicate with a PC Connected to the Network

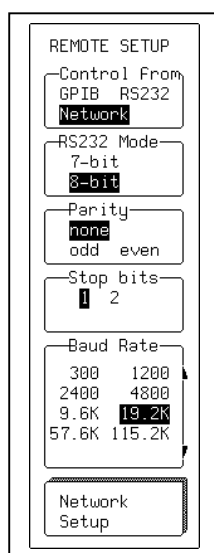
If your computer is already configured, obtain the following settings for the Waverunner from your network administrator:

IP address
Subnet Mask
Default Gateway

1. Press the UTILITIES button on the oscilloscope's front panel. The "Utilities" menu is displayed.



2. Select **Remote Setup** by pressing its front panel menu button. The "REMOTE SETUP" menu is displayed.



3. Select **Network Setup** with its front panel menu button; "TCP/IP Network Setup" is displayed. Verify or modify the Ethernet settings via the oscilloscope's front panel controls.

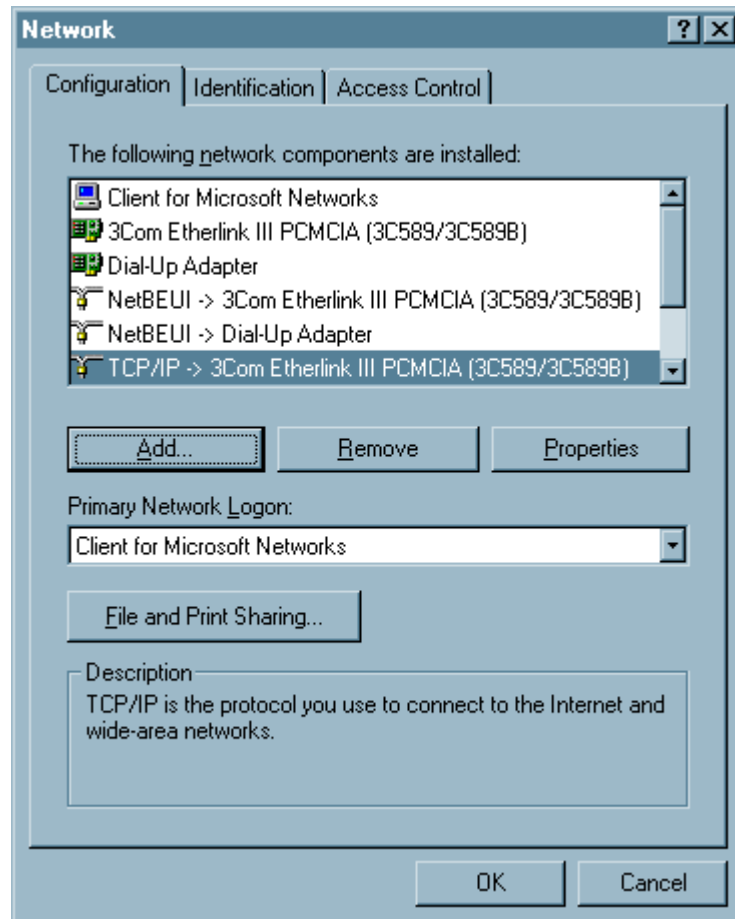


Configuring a PC That Is Not Connected to the Network

Note: The following examples assume that the host PC operates from Windows™ 95. The connection procedure for Windows NT is similar.

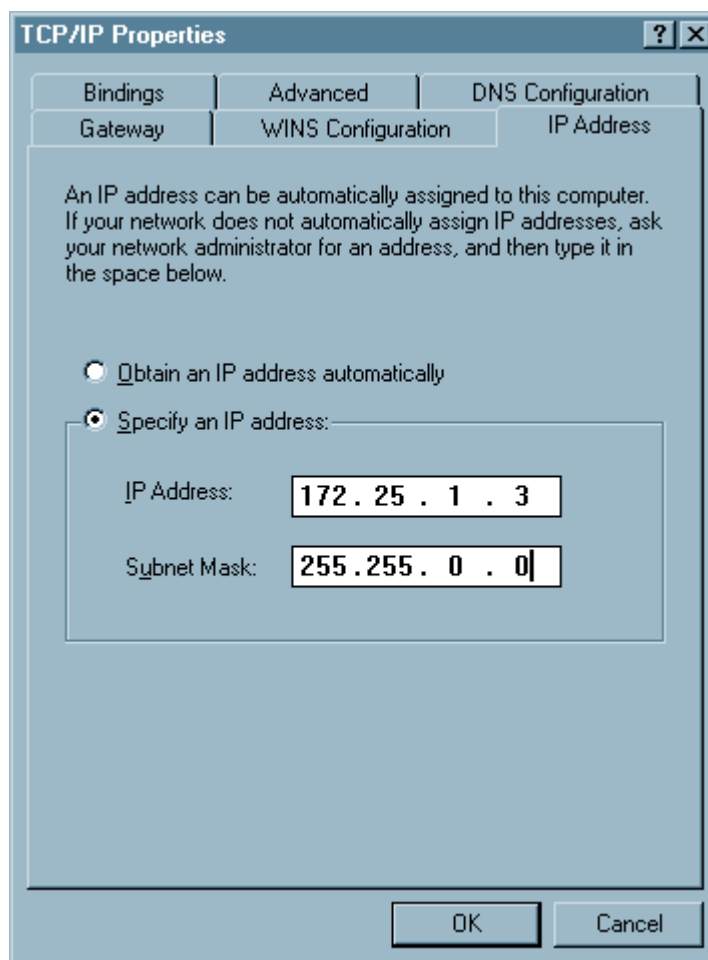
Before establishing a direct connection between the oscilloscope and the host computer, the PC must first be properly configured. A specific TCP/IP address must be assigned — known as "static addressing." But this means that the PC *cannot* be set up to obtain its IP address from a DHCP server. To set the host PC's static address with Windows 95:

1. Select Start → Settings → Control Panel.
2. Double-click the Network icon in the Control Panel. A network dialog box similar to this one appears:



Connecting to PC or Network

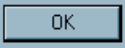
3. If the TCP/IP protocol is not listed, you will have to add it. Follow your operating system user guide to add the TCP/IP protocol and bind it to the Ethernet adapter.



4. Double-click the  TCP/IP -> line. A dialog box similar to the one below appears. Select  Specify an IP address:



Waverunner Ethernet Option

5. If this has already been selected, the computer's static address is set and nothing more needs to be done. Cancel out of the TCP/IP and network dialog boxes, and close the control panel.
6. If the address has not already been selected, fill in the IP address and subnet mask as shown above. The subnet mask for 172.25.x.x is 255.255.0.0. If the computer will not be plugged into a network, the above address (or almost any address within the chosen subnet) will do. The only address that will not work is the same one as that of the oscilloscope to be controlled.
7. Now click  in the TCP/IP Properties dialog box. Depending on the operating system and version, you may need to reboot the computer. If so, a dialog box should alert you to this.

Making Physical Connection

To make the physical connection between the oscilloscope and the host computer:

1. Connect the oscilloscope to the PC using a crossover cable (for direct connection).
2. Power the oscilloscope unit on.

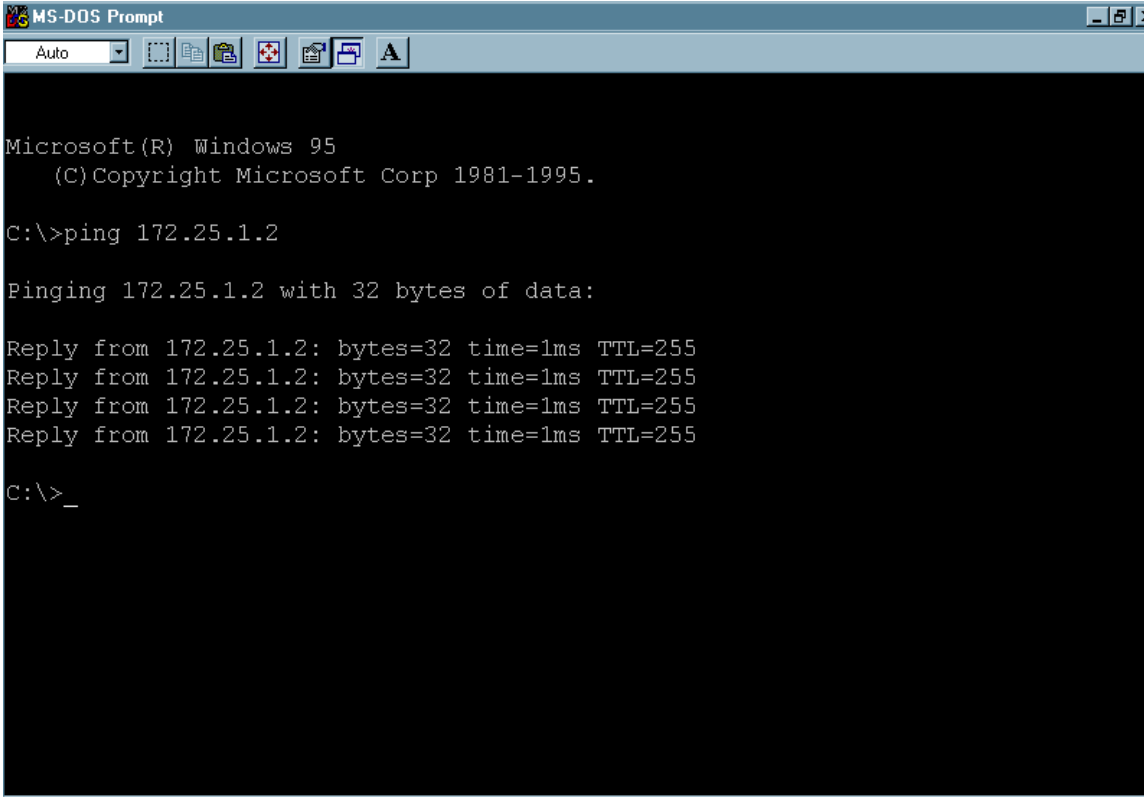
Verifying Connection

Note: If your PC does not have TCP/IP, see the dedicated Windows™ 95 or NT User's Manuals for installation instructions.

The physical connection and the PC's TCP/IP configuration can be verified using the "ping" command, available on both Windows™ 95 and Windows™ NT with TCP/IP network protocol installed. In order to check the network connection between the PC and the oscilloscope:

3. Start MS-DOS Prompt
4. Type ping <ip_address>, where <ip_address> is the static address assigned to the oscilloscope. The dialog box on the next page illustrates the result of a successful "ping", with the Ethernet connection shown established. The IP address of the oscilloscope in this case is 172.25.1.2, the factory default address.

Connecting to PC or Network

A screenshot of an MS-DOS Prompt window. The title bar reads "MS-DOS Prompt". Below the title bar is a menu bar with "Auto" and several icons. The main area of the window is black with white text. The text shows the command prompt "C:\>" followed by the command "ping 172.25.1.2". The output shows four successful replies from 172.25.1.2 with 32 bytes of data, each taking 1ms and having a TTL of 255. The prompt ends with "C:\>_".

```
Microsoft(R) Windows 95
(C) Copyright Microsoft Corp 1981-1995.

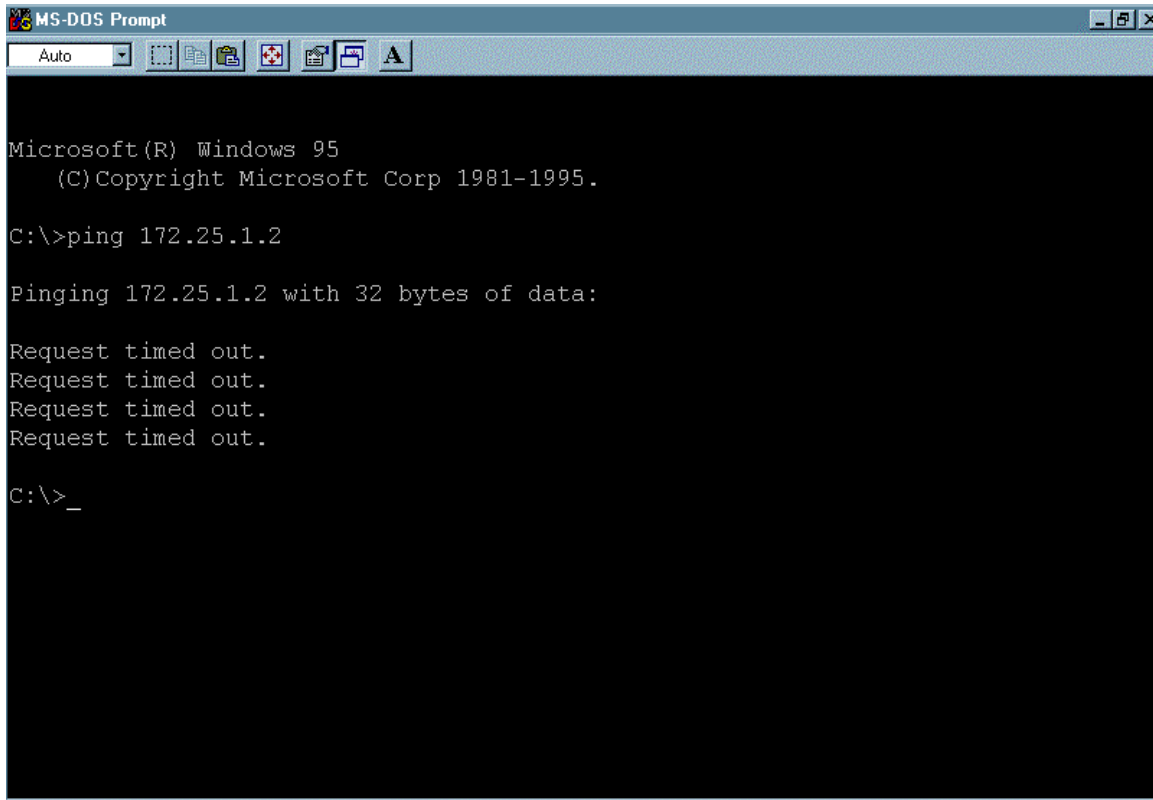
C:\>ping 172.25.1.2

Pinging 172.25.1.2 with 32 bytes of data:

Reply from 172.25.1.2: bytes=32 time=1ms TTL=255
Reply from 172.25.1.2: bytes=32 time=1ms TTL=255
Reply from 172.25.1.2: bytes=32 time=1ms TTL=255
Reply from 172.25.1.2: bytes=32 time=1ms TTL=255

C:\>_
```

The ping command has sent a message to the instrument and waited for a response. If a timeout occurs, as is shown in the box on the next page, the IP address used for the destination (the oscilloscope) is *incorrect* or not within the subnet mask of the PC's IP address.



```
MS-DOS Prompt
Auto
Microsoft(R) Windows 95
(C)Copyright Microsoft Corp 1981-1995.
C:\>ping 172.25.1.2
Pinging 172.25.1.2 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
C:\>_
```

Network Connection

Check with your network administrator before connecting the oscilloscope to a network. Incorrect addresses on a network can cause both the network and the oscilloscope to behave strangely. However, a network connection ought to be as simple as plugging the oscilloscope into the network. *Proper connection can be verified by following the verification instructions in the previous section.*

If you are concerned mainly with system throughput, network connection is *not* recommended because the network traffic will slow down the oscilloscope's data transfer rate.

Connecting to PC or Network

Note: The default Gateway is assigned as "172.25.0.1". Unless your network has this Gateway available, you must ensure the computer and the oscilloscope are on the same subnet.

Changing IP Address

Once the IP address is changed, the unit will no longer respond to the original address.

If the network settings are unknown or accidentally set to invalid values, they can be recovered by following the procedure above.

#



Waverunner Ethernet Option

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