Summary

The recommended way to connect to a MultiFlex ETH 1000 Series Ethernet motion controller is via a separate, dedicated network interface to the host PC. This isolates the controller from any corporate or Internet network traffic. In this configuration, only the host PC can communicate directly with the controller. There may be times, however, when it is desirable or even necessary to access the controller directly from a PC other than the machine's host PC. Undocumented features of Windows 2000 and Window XP allow users to route communications between the two networks.

More Information

In this example the host PC is connected to both the motion controller using one Ethernet interface card, and also to a company-wide corporate network via a second ethernet card. The two networks use separate IP address ranges. The remote PC is connected to the corporate network. Note that Microsoft does not officially support the routing technique described in this *TECHNote*. The host PC must be running Windows 2000 or Windows XP.
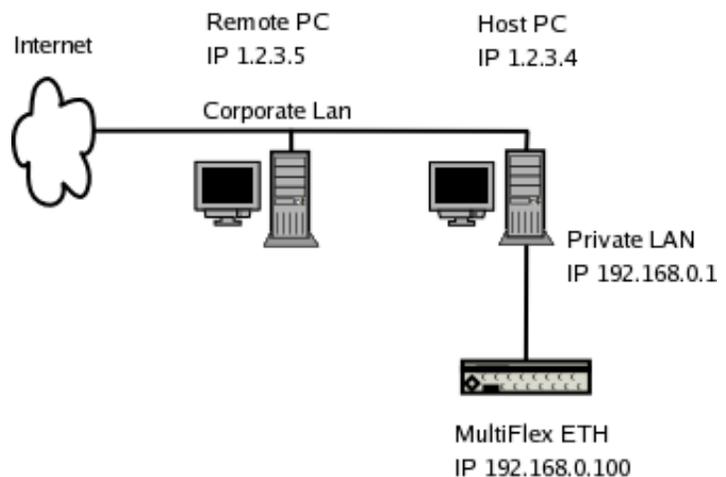
> **WARNING:** *This technique requires the user to edit the Windows registry to enable the TCP/IP routing feature. Errors in the registry can result in a system that is un-bootable.*

On the host PC launch the registry editor – click **Start** then **Run…,** enter **regedit** in the Run dialog box and click OK. Navigate through the registry tree to

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters
```

Double click on the **IPEnableRouter** key in the right hand pane and change the value data from zero (0) to one (1). Reboot the host PC. The host PC will now act as a network router, connecting corporate network traffic to the private controller network.

Next, launch a command prompt window on the remote computer and provide it with a route to the host PC for packets destined to the controller. A network route instructs a client PC with the

router to send specific network traffic to in order to reach an address on a different network. Normally the gateway address is used for all non-local addresses, by adding a route we can over-ride this behavior for specific addresses.

Go to **Start**, **Program Files**, **Accessories** and click on **Command Prompt**. Assuming the controller is at its default address of 192.168.0.100, and the host PC has an IP address of 1.2.3.4 on the corporate net, issue the following command:

```
route -p ADD 192.168.0.100 MASK 255.255.255.255 1.2.3.4
```

This instructs the remote PC that packets addressed to the address 192.168.0.100 (controller default) should be sent to the PC at address 1.2.3.4 (i.e. the host PC, acting as a router), and this PC will know how to get them to the target address. The –p option to the route command instructs it to make this route persistent so it will survive reboots.