This Manual covers all configurations of the 170 Etherport Modem with the Serial Number 170E-700213M and up.
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170-Etherport OVERVIEW

The 170-Etherport is an environmentally hardened Ethernet to Serial Media Converter that plugs into a 170 Controller's modem slot.

The fully configurable network interface connects to the nework via an RJ45 Ethernet 10/100Base T connector. The Host Interface and the Auxiliary Port utilizes Asynchronous serial RS232 communications supporting data rates from 300Bps to 921,600 Kbps.

The two serial ports communicate via the a single communicatings channel. The Host Interface connects through the card edge to the local controller. The Auxiliary Port utilizes a DB9 connector and can be used to bring in copper or wireless communications into the main data stream.

Additionally, the Auxiliary Port functionality is switch selectable. It can operate as a DCE or DTE interface. In DCE mode, it operates in parallel with the Host Interface and can be used to configure the Etherport via a PC terminal program. In DTE mode, it provides an external interface for the host which can be connected to another DCE device such as a FSK modem. Full handshaking is provided so as to facilitate interoperability across different transmission systems.

The diagram below illustrates the flexibility of the 170-Etherport.
INTRODUCTION to the 170-Etherport

Side View

The Auxiliary pin-out information is printed on the side, both DCE and DTE connections are shown.

Front View

Serial Data LED’s

RTS, when lit indicates RTS has been asserted (raised) by the 170 Controller or the Auxiliary Port.

CTS controls data flow from the Network to both Data Ports, alternatively CTS can be forced “HIGH” by SW4 to continuously stream data with no flow control.

TXD Flashes when TX Data is received from the 170 Controller or the Auxiliary Port.

RXD Flashes when RX Data is sent to the 170 Controller or the Auxiliary Port.

DCD The Etherport will assert DCD when receiving data from the LAN, alternatively DCD can be forced “HIGH” by SW3.

This is used to drive the main ports DCD output when using a connectionless protocol (i.e. UDP). If the controller depends on DCD, it can be forced “HIGH” by turning SW3 to “ON” position.
Network LED’s (RJ45 Ethernet Port)

<table>
<thead>
<tr>
<th>Link LED</th>
<th>RJ45</th>
<th>Activity LED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td>No Link</td>
<td>No Activity</td>
</tr>
<tr>
<td>Amber</td>
<td>10 Mbps</td>
<td>Half Duplex</td>
</tr>
<tr>
<td>Green</td>
<td>100Mbps</td>
<td>Full Duplex</td>
</tr>
</tbody>
</table>

Data Port Pin Out Assignments

![Data Port Pin Out Assignments Diagram](image-url)
<table>
<thead>
<tr>
<th>Pin</th>
<th>RJ45 Ethernet</th>
<th></th>
<th>Pin</th>
<th>DB9F Aux Port</th>
<th></th>
<th>Pin</th>
<th>Host Interface</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TX +</td>
<td>➔</td>
<td>Out</td>
<td>1</td>
<td>DCD</td>
<td>➔</td>
<td>Out</td>
</tr>
<tr>
<td>2</td>
<td>TX -</td>
<td>➔</td>
<td>Out</td>
<td>2</td>
<td>RXD</td>
<td>➔</td>
<td>Out</td>
</tr>
<tr>
<td>3</td>
<td>RX +</td>
<td>➔</td>
<td>In</td>
<td>3</td>
<td>TXD</td>
<td>➔</td>
<td>In</td>
</tr>
<tr>
<td>6</td>
<td>RX -</td>
<td>➔</td>
<td>In</td>
<td>4</td>
<td>NC</td>
<td>➔</td>
<td>In</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td>GND</td>
<td>➔</td>
<td>In</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td>NC</td>
<td>➔</td>
<td>In</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td>RTS</td>
<td>➔</td>
<td>In</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8</td>
<td>CTS</td>
<td>➔</td>
<td>Out</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9</td>
<td>NC</td>
<td>➔</td>
<td>In</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P</td>
<td>➔</td>
<td>Out</td>
</tr>
</tbody>
</table>
INSTALLATION

Switch Settings (Defaults are in bold)

Aux Port (S2.1)- “DCE”

Normal Data Flow Operation at a Remote Controller Location. (Aux Port S2.ITCHD to DCE Mode)

Data from the Network (Ethernet) flows to and from both the Controller (card edge) and the Auxiliary Port.

Aux Port (S2.1)-“DTE”

Aux Port DTE Operation. (Aux Port S2.ITCHD to DTE Mode)

Data from the Controller (card edge) flows to and from the Network (Ethernet) and the Auxiliary Port.

Controller Port (S2.2)-“Enable”

Normal Operation, Card Edge connection (controller) is enabled, data flows to and from the controller to the network.

Controller Port S2.2-“Disable”

Disconnects the controller’s RTS and TXD. This is to prevent the 170 Controller from interfering with communications while configuring the LAN device using the Aux Port set as a DCE.
DCD (S2.3)-“High”

This is used to satisfy the Card Edge DCD (input to the Controller) when using a connectionless protocol (i.e. UDP). If the Controller depends on DCD, it can be forced “HIGH” by turning S2.3 to the “On” position.

DCD (S2.3)-“Active”

In the Off position “DCD” is driven from the Network and the Aux Port. It get asserted with an active socket connection is established.

CTS (S2.4)-“High”

This is used to satisfy the Card Edge CTS (input to the Controller) when using a connectionless protocol (i.e. UDP). If the Controller depends on CTS, it can be forced “HIGH” by turning S2.4 to the “High” position.

CTS (S2.4)-“CTS”

In the “CTS” position “CTS” is driven from the Network and the Aux Port.

DTR (S2.5)-“Enabled”

This is used to satisfy the Card Edge CTS (input to the Controller) when using a connectionless protocol (i.e. UDP). If the Controller depends on DCD, it can be forced “HIGH” by turning S2.4 to the “On” position.

DTR (S2.5)-“Off”

In the Off position, “DTR” is constant high.
Dynamic DCD (S2.6)-“Enabled”

The “DCD” S2 itch must be set to Active. An optional KOD assembly must be installed. This provides the controller with an active Data Carrier Detect signal. It asserts DCD when data is received from the LAN.

Dynamic DCD (S2.6)-“Off”

In the Off position the function of the DCD pin is determined by the DCD S2 itch.

6ms Timing (S2.7)-“6ms”

DCD is asserted 6ms before received data begins and de-asserted 6ms after received data ends.

6ms Timing (S2.7)-“Off”

In the Off position “CTS” is driven from the Network and the Aux Port.

10ms Timing (S2.8)-“10ms”

DCD is asserted 10ms before received data begins and de-asserted 10ms after received data ends.

10ms Timing (S2.8)-“Off”

In the Off position “CTS” is driven from the Network and the Aux Port.
Factory Default Settings

DIP Switch Settings

The 170-Etherport is shipped from the factory with the DIP Switches set as shown.

TCP/IP Protocol

IP Address  192.168.0.1
Connect Mode  Auto Start
RS232 Port Number  10001
Remote IP Address  192.168.0.2
Remote Port 10001
RS232 Configuration
Baud Rate  9600
Parity None
Stop Bit  1 (one)
Setting Up The 170- Etherport

What you will need to know

IP Address
Your 170 Etherport must have a unique IP Address on your network. The systems administrator generally provides the IP address, Subnet Mask and Gateway. The IP Address must be within a valid range, unique to your network and in the same subnet as your PC

IP Address:       ______ ______ ______
Subnet Mask: ___________ ______ ______
Gateway: ______ ______ ______

You have several options for assigning an IP to the Etherport.
Use a terminal or terminal emulation program (HyperTerminal) to access the Auxiliary Port. This mode is like a back door connection and does not need a password, this is ideal if you do not know the password and wish to reset it.
Use a Telnet connection to configure the unit over the network. (Ethernet). This mode requires the use of a password to get in if one has been previously set. The default password is <password>

The unit’s configuration is stored in nonvolatile memory and is retained without power.
You can change the configuration at any time. The unit performs a reset after the configuration has been changed and stored.

Preparing the 170 Etherport for Terminal Programming (HyperTerminal).

Switch the Auxiliary Port to DCE operation; this is necessary when programming via Terminal emulation as the terminal is a DTE device (computer).

Next select Disable; this isolates the controller from the card edge serial port to stop any possible interference when programming.

Connect the Auxiliary port to a computer or terminal using a standard computer to modem cable (straight through DB9M to DB9F)
Plug the 170 Etherport into the controller and switch on the power, if not already on.

Run the terminal emulation program (HyperTerminal) and configure the computer’s serial port to:

9600 Baud
8 Bits
No Parity
1 Stop Bit.
No Flow Control

Note: This is the Etherport’s startup configuration. The user defined configuration will become active after the Etherport is running.

To start the configuration utility, in the HyperTerminals text window, hold down the x key and then momentary press the reset button on the front panel of the 170Etherport. Note that the led’s flash green, orange, green indicating that the device is going through it’s boot sequence.

When the Etherport detects the stream of x’s, the configuration utility will startup and prompt the user to depress any key.

If no key is depressed within 5s, then the Etherport will continue booting.

Pressing a key will cause the Etherport to display the following menu.
Setting the IP Address

Press 0 <enter> to select the Server Configuration Menu; this is where the IP Address, Gateway IP Address and the Netmask are set. To display the current IP Address, press <enter> three times. Each time enter is pressed, the next octet of the current IP Address is displayed.

Current IP Address: (192) ___

Starting with the IP Address enter the unique value that administrator has assigned for this Etherport.

Example

Assigned IP Address 10.0.0.133

Type each octet when prompted and then press the “Enter” key.

IP Address: (192) 10
IP Address: (192) 10.(168) 0
IP Address: (192) 10.(168) 0.(000) 0
IP Address: (192) 10.(168) 0.(000) 0.(001) 133

Set Gateway IP Address (N)

Setting the Gateway IP Address

A gateway allows communication to other networks. The gateway address is the IP address of the bridging router connected to the same network as the Etherport. The gateway address must be an address within the range of address’s assigned to the network the Etherport is being configured for.

The default is N (No), meaning the gateway address has not been set and shows all zero’s.

To set the gateway address, Enter “Y” and then enter the address in the same manner as the IP address was entered.

Set Gateway IP Address (N) ? Y
Gateway IP addr (000)10.(000)1 .(000)2 .(000)113 then press <enter>
Setting the Netmask (Subnet)

This is used to determine if the target IP Address is on the same LAN as the sender, or on a remote LAN. This is done by the network mask that compares the senders Mask Bits with the destination Mask bits in there respective IP Addresses, note that these are always 1’s. If both sender and destination Masks are the same then the destination is on the same LAN. If they are different then IP will send it to the gateway to route to another destination on a remote LAN.

The Netmask defines the number of bits taken from the IP Address that are assigned for the host section. The input prompts for the number of Host Bits to be entered, then calculates the Netmask, which displays in standard decimal-dot notation when the saved parameters are displayed.

Standard IP Network Masks

<table>
<thead>
<tr>
<th>Network Class</th>
<th>Mask Bits</th>
<th>Host Bits</th>
<th>Netmask</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>8</td>
<td>24</td>
<td>255.0.0.0</td>
</tr>
<tr>
<td>B</td>
<td>16</td>
<td>16</td>
<td>255.255.0.0</td>
</tr>
<tr>
<td>C</td>
<td>24</td>
<td>8</td>
<td>255.255.255.0</td>
</tr>
</tbody>
</table>

Class A = Binary 1111 1111 0000 0000 0000 0000 0000 0000

Network Bits Host Bits

This example shows 24 Host Bits. Enter the number of Mask Bits that correspond with your assigned Netmask e.g. 24.

Netmask: Number of Bits for Host Part (0=default) (0) 24 then press <enter>

Setting the DNS Server IP Address

The Domain Name Server (DNS) keeps a database of IP addresses and assigned names given to them. As the ETherport is not intended for strictly controller communications, no DNS is required. Therefore this option should be disabled by entering “N” at the prompt.

Set DNS Server IP addr (N) N
Changing the Telnet Password

A password can be assigned to the telnet access of the configuration utility. However, it is not recommended at this point.

Change telnet config password (N) N

NOTE: Once the network addressing has been set, the 170 Etherport can be attached to the network and the rest of the configuration can be accomplished online through a web browser.
Setting the Communication Modes

From the main menu, Select 1 for Channel 1 and press <enter>

This sub-menu automatically shows different options depending on which connection protocol (TCP or UDP) is being used.

The details are listed below. The common options will be described first followed by the protocol dependent options.

Baudrate

Note: If the Etherport is used in a 170 Controller the typical baud rates are 1200 or 9600 Bps.

The supported baud rates are as follows:

300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400, 460800, 921600 Bps.

Enter the desired baud rate e.g. 1200

Baudrate (9600) ? 1200 then press <enter>

I/F Mode

This is where the number of data bits, parity and number of stop bits is configured. These parameters are configured by setting or not setting bits in a “bitmap” register.
When power is applied or when a reset is performed the Etherport configures itself by reading all of its setup registers. This is comparable to the “S” registers in dial-up smart modems.

The following table describes the possible configurations and their corresponding register values.

<table>
<thead>
<tr>
<th>I/F Configuration.</th>
<th>I/F Mode Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 bit, no Parity, 1 Stop bit</td>
<td>4C</td>
</tr>
<tr>
<td>8,n,2</td>
<td>CC</td>
</tr>
<tr>
<td>8,e,1</td>
<td>7C</td>
</tr>
<tr>
<td>8,e,2</td>
<td>FC</td>
</tr>
<tr>
<td>8,o,1</td>
<td>5C</td>
</tr>
<tr>
<td>8,o,2</td>
<td>DC</td>
</tr>
<tr>
<td>7,n,1</td>
<td>48</td>
</tr>
<tr>
<td>7,n,2</td>
<td>C8</td>
</tr>
<tr>
<td>7,e,1</td>
<td>78</td>
</tr>
<tr>
<td>7,e,2</td>
<td>F8</td>
</tr>
<tr>
<td>7,o,1</td>
<td>58</td>
</tr>
<tr>
<td>7,o,2</td>
<td>D8</td>
</tr>
</tbody>
</table>

**Flow**

The following table describes the possible configurations and their corresponding register values.

<table>
<thead>
<tr>
<th>Flow Control Configureaiton</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No flow control</td>
<td>00</td>
</tr>
<tr>
<td>XON/XOFF flow control</td>
<td>01</td>
</tr>
<tr>
<td>Hardware handshake with RTS/CTS lines</td>
<td>02</td>
</tr>
<tr>
<td>XON/XOFF pass characters to host</td>
<td>05</td>
</tr>
</tbody>
</table>

**NOTICE:** Currently only “Hardware handshake” (02) is supported.
Port No

This address is the virtual link between the LAN interface and the serial port. When data is received from the network, it is directed to the port number addressed by this value. This number is generally controlled by the IT department and/or system engineers. On some systems, 80001 has been used.

Refer to the table of reserved port numbers (page 36) when setting this value.

ConnectMode

This value describes what type of network protocol (TCP or UDP) to use when establishing a connection between nodes on a network. See Appendix C for full details.

Following are the recommended settings:

C0  TCP, Accepts incoming connection from its remote IP, Does not attempt to initiate a connection.
C5  TCP, Accepts incoming connection from its remote IP, Initiates a connection with its remote IP.
CC  UDP, Accepts incoming connection from its remote IP or Broadcast IP.

Use C0 and C5 on Etherports that are being connected in a point-to-point network or when using traffic programs that can assign IP addresses on the fly.

Use CC on for point to multipoint networks.

More on this subject in the Applications section.

Remote IP Address: (192). (168). (000). (002)

Sets the IP address of the remote device. Whenever data is transmitted onto the network, this IP address will be included as the destination address for the data.
Remote Port (10001) 
When the remote device receives data, it will route the data to this port. This should be the same as the “Port No” of the remote device.

This number is generally controlled by the IT department and or system engineers. On some systems, 80001 has been used.

Refer to the table of reserved port numbers (page 36) when setting this value.

SendChar 1 (00) ?
SendChar 2 (00) ?

If the Etherport receives a character on the serial line that matches one of these characters, it transmits the character/s and all other data, to the network. Setting the first sendchar to 00 disables the recognition of the characters. Alternatively, the Etherport can interpret two characters as a sequence.

TCP OPTIONS:

Send ‘+++’ in Modem Mode (Y) ?
Not supported at this time. Leave this set to “Y.”

Show IP addr after ‘RING’ (Y) ?
Not supported at this time. Leave this set to “Y.”

Auto increment source port (N) ?
Increments the port number with each new connectons. Leave at “N.”

FlushMode (00) ?
Sets various conditions for flushing buffers. Leave set to 0.

DisConnMode (00) ?
Sets various conditions that intiate a disconnect. Leave set to 0.

DisConnTime (00:00) ?:
This is a inactivity timer which causes the Etherport to drop the network connection after the specified time of no data on the RS232 port.

Leave at 00:00
UDP OPTIONS:

Datagram Type (01) ?
Sets the type of packet type used in UDP mode. Set it to 01
Supported Types are as follows:
  00
  01
  04
  05
  FD

Set to 01

Send as Broadcast (N) ?
This is an inactivity timer which causes the Etherport to drop the network connection after the specified time of no data on the RS232 port.

Leave at 00:00

Pack Cntrl (80) ?
This is an inactivity timer which causes the Etherport to drop the network connection after the specified time of no data on the RS232 port.

Leave at 00:00

If the settings you have made are valid, press <enter> until you get back to the “Change Setup”, select 9 to Save and exit.

You have now configured the 170 Etherport, make sure that you enable the Host Interface communications port.
Server Configuration Telnet Connection Mode

To Enter Setup Mode

In Windows, click on “start” then select “Run”.

In the Run window, type the following command, where x.x.x.x is the IP address, and 9999 is the units fixed network configuration port number. You must insert a space between the telnet, IP address and the port number.

As an example  

Telnet 192.168.0.1 9999  

then click the OK button.

The following screen will appear, press enter within 5 seconds or the connection to the host will be lost.

Press Enter for Setup Mode

You will then see information scrolling on the screen, after it stops the following message is displayed at the bottom of the screen.

Change Setup:
0 Server
1 Channel 1
3 E-mail
5 Expert
6 Security
7 Defaults
8 Exit without save
9 Save and exit  

Your choice ?
Applications

Point to Point using TCP protocol
Set to tcp
set local/master to autostart
set remotes to none
set local and remote ports to same number ie 10001 (80001)
set remote ip address to other board
Set DCD to “Active”

Point to Point using UDP protocol
set to udp
set udp mode to 01
set local and remote ports to same number ie 10001 (80001)
set remote ip address to other board
Set DCD to “High”

Point to Multi-Point using TCP protocol
(requires host program).
Set to tcp
set local/master for autostart
set remotes to none
set local and remote ports to same number ie 10001 (80001)
Set remote ip address’s to master’s ip address
Issue remote IP address from host program at transmit time.

Point to Multi-Point using UDP protocol
set to udp
set udp mode to 01
set local and remote ports to same number ie 10001 (80001)
set local/master’s remote ip address to broadcast
set remote’s remote ip address to master
Appendix A – Web Browser Configuration

Enter the IP address into the browser’s URL window:

When the password prompt appears, click on the “OK” button to proceed.

Verify that the “home” page reflects the current Firmware and Web Server program Revisions.

The Etherport 170’s MAC address appears at the top of the page.
With the mouse select “Network”:

**CAUTION:** Any changes made in any of the sub-menus will be lost unless the “Ok” button is selected and “Done!” appears prior to leaving the sub-menu.

![Network Settings](image)

**This option is used by independent devices to automatically obtain an IP address every time the device is connected to the network. This option is not used in Local/Remote traffic applications.**

As a preliminary to setting the IP configuration of the local or remote controllers a network map/list of available IP address’s must be created.

**DONT FORGET TO SELECT THE “OK” BUTTON BEFORE GOING TO THE NEXT MENU.**

After selecting the “OK” button, “Done!” indicates that the configuration parameters will be updated.

All changes to the configuration will be lost if “Done!” does not appear...
With the mouse select “Server”:

CAUTION: Any changes made in any of the sub-menus will be lost unless the “Ok” button is selected and “Done!” appears prior to leaving the sub-menu.

After selecting the “Ok” button, “Done!” indicates that the configuration parameters will be updated.

All changes to the configuration will be lost if “Done!” does not appear.
With the mouse select “Serial Settings”:

CAUTION: Any changes made in any of the sub-menus will be lost unless the “Ok” button is selected and “Done!” appears prior to leaving the sub-menu.

Pack Control:

With packing enabled, a packing algorithm is used that optimizes data packets for wide area networks. It creates larger but fewer packets.

With packing not enabled, a packing algorithm is used that optimizes packets for local environments. It creates many small packets but minimizes the delay between them.
While both modes work, having packing not enabled causes gaps in the command string between controllers, which may or may not effect the operation.

Enabling packing will create packets containing the complete polling command.

The Input Buffer (Serial to Network) can be flushed when a connection is made to the network (Active), when a connection is made from the network (Passive) and/or when a connections is closed.

The Output Buffer (Network to Serial) can be flushed when a connection is made to the network (Active), when a connection is made from the network (Passive) and/or when a connections is closed.
With the mouse select “Connection”:

GDI utilizes two type of network communications protocols. Broadcast UDP and direct connect TCP.

When the Etherport 170 modem is setup for Direct Connect TCP, two specific modems are configured to create a TCP connection between them. Each modem is configured with the other modem’s IP address and port number. One of the modems (local/master) is then configured to “Auto Connect” which causes it to seek out the other modem (remote/slave) and make a TCP connection with it.

When the Etherport 170 modem is setup for Broadcast UDP, UDP connections are opened and closed each time the local/master sends out a Polling command. The local/master is configured to send packets to all modems on the same network. The remote/slave modems are configured to receive broadcast packets, but transmit only to the local/master modem.

Examples of both configurations are shown below:

CAUTION: Any changes made in any of the sub-menus will be lost unless the “Ok” button is selected and “Done!” appears prior to leaving the sub-menu.

DONT FORGET TO SELECT THE “OK” BUTTON BEFORE GOING TO THE NEXT MENU.
The “Local” and “Remote” Port addresses are the link (connection) between the LAN interface and the serial port. When data is received from the network, it is directed to the port number addressed by this value. This number is generally controlled by the IT department and or system software requirements. On some systems, 80001 has been used.

There are some values that may not be used. Refer to the table of reserved port numbers (Page 36) when setting this value.
UDP Mode:

The “Local” and “Remote” Port addresses are the link (connection) between the LAN interface and the serial port. When data is received from the network, it is directed to the port number addressed by this value. This number is generally controlled by the IT department and or system software requirements. On some systems, 80001 has been used.

There are some values that may not be used. Refer to the table of reserved port numbers when setting this value.
Remote Host:

On the remote/slave modems, this is the IP address of the local/Master modems.

On the local/master Etherport modems, this is a broadcast IP address based on the Subnet Mask (“Network” menu).

The action is to set the locals IP address to a value that can be accepted by any of the remote modems on the same network.

Normally, when a modem on a network deciphers a data packet, it compares the IP address contained in the packet to it’s own IP address. If they are the same, then the packet is accepted. If they are different, then the packet is rejected.

The comparison is made in binary mode. The numbers in the IP address are converted to their binary number equivalents and then they are compared bit by bit. As long as the result is equal to the IP address of the receiving modem it will flag it as acceptable.

Therefore, if the IP address of the master has all of these binary bits set, then the result of the comparison will always be equal to the remote’s IP Address.

To derive the correct IP address for the local/master, simply look at the Subnet Mask and network number and then invert it.

In this example the subnet mask is 255.0.0.0 and so the broadcast IP address will be 10.255.255.255.

Alternately, the broadcast can be limited to just the local subnet:
10.0.0.255
With the mouse select “Apply Settings”

After the changes have been applied, the Etherport 170 will reboot back to the home display.
NOTE: The configurable pins menu can be accessed. However any changes made here will affect the Etherport 170’s serial communications.

The configurable pins options have been set at the factory and should not be changed.
Appendix B – Device Installer

Another way to configure the GDI 170 Etherport care is through a LAN based utility call Device Installer. This utility works over a internal LAN and will “Search the network for 170 Etherport Cards.”
Appendix C – Configuration Bit Maps

The Interface (IF) Mode is a bit-coded byte entered in hexadecimal notation.

<table>
<thead>
<tr>
<th>IF Mode Option</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS232(1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>7 Bit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Bit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Parity</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Even Parity</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odd Parity</td>
<td>0</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Stop Bit</td>
<td>0</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Stop Bits(1)</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(1) 2 Stop bits are implemented by software. This might influence performance.

How to determine your Hex value for 8 bits, Even Parity, 1 Stop Bit from above table.

Note:

Decimal counting: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
Hexadecimal counting: 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F (1=1, F=15)

Binary #

<table>
<thead>
<tr>
<th></th>
<th>8</th>
<th>4</th>
<th>2</th>
<th>1</th>
<th>8</th>
<th>4</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>8E1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Port Numbers

<table>
<thead>
<tr>
<th>1 – 1024</th>
<th>Reserved for</th>
</tr>
</thead>
<tbody>
<tr>
<td>9999</td>
<td>Telnet setup</td>
</tr>
<tr>
<td>14000-14009</td>
<td>Reserved for Redirector</td>
</tr>
<tr>
<td>30704</td>
<td>Reserved (77F0h)</td>
</tr>
<tr>
<td>30718</td>
<td>Reserved (77FEh)</td>
</tr>
</tbody>
</table>

Table of Reserved Port Numbers
### Connect Mode Bitmap

<table>
<thead>
<tr>
<th>Connect Mode Option</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Incoming Connection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never accept incoming</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accept with DTR Active</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Always Accept</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Response</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nothing (quiet)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Character response (C=connect,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>D=disconnect,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N=unreachable)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Active Startup</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No active startup</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With any character</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With DTR Active</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With a specific start character</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manual connection</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autostart</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hostlist</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) Datagram Type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Directed UDP</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix D – Updating Firmware

Any firmware update also requires the Web Server to be updated. Below are two different methodologies on how to Flash the Firmware and associated Web Server.

Using “tftp” to update the firmware:

Determine the IP address of the board. This example will use 10.0.0.111.
From the host computer, open a DOS shell window.
Change the directory to where the firmware (.rom) and web interface (.cob) files are located
Verify that the board is connected to the host computer via a ethernet network.
Enter “ping 10.0.0.111”
The board should respond with the following:

“Reply from 10.0.0.111: bytes=32 time(1ms TTL=64)”

Enter “tftp -i 10.0.0.111 put xpt03_6602.rom X5”
Wait for the cursor to reappear. Takes about 1 minute.

Enter “tftp -i 10.0.0.111 put gen_xpt_webm_1701.cob WEB1”
Wait for the cursor to reappear. Takes about 1 minute.

Exit the shell window.
Using Device Installer to update the firmware:

When the Device installer opens, it scans the network for available 170 Etherports and reports their details in the Device Details window.

To rescan the network, click on the “Search” button.

Select the modem that is to be upgraded.

To upgrade the firmware and the web browser interface click on the “Upgrade” button.
The “Upgrade” button launches the “Device Upgrade Wizard” which guides the user through a step-by-step process of selecting and loading the new firmware/web interface programs in to the 170 Etherport.

Leave the selection “Create a custom installation by specifying individual files (Typical)” Selection checked.

Click on the “Next” button.

Click on the “Browse” button and load the desired firmware file identified by the .rom extension.

Click “Next.”
Click on the “Install files contained in COB partition.”

Click “Next.”

Select the #1 partition.

Notice that the steps change from “3 of 5” to “4 of 6”

Click “Next”

Navigate to the desired Web Server file and select it.

Click “Open.”
When the following message pops up, click on “YES.”

When the file loads, partitions 2, 3, and 4 will show “OVERFLOW” status indicating that the file is using those partitions as well.

Click “Next.”

Now that all of the files have been loaded, it’s time to transfer them into the 170Etherport board.

Click “Next.”

While the files are being transferred, the status bar at the bottom of the window indicates the progress of the transfer. Each file will be highlighted in red as it is being transferred.
When finished, all files should be highlighted in green.

Click “Close.”