
PDS-220Fx Series

User Manual

Warranty

All products manufactured by ICP DAS are under warranty regarding defective materials for a period of one year, starting from the date of delivery to the original purchaser.

Warning

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Table of Contents

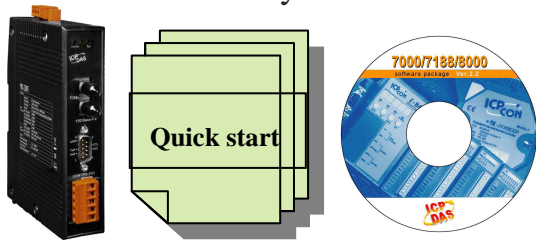
1.	INTRODUCTION	5
1.1.	WHY FIBER OPTIC SOLUTIONS?.....	5
1.2.	WHY VxCOMM TECHNOLOGY?	7
1.3.	WHY WEB SERVER TECHNOLOGY?	9
2.	TYPICAL APPLICATIONS FOR THE PDS-220FX	10
2.1.	RS-232/485/422 DEVICE NETWORKING	10
2.2.	FIBER I/O APPLICATIONS.....	11
2.3.	CONFIGURABLE FIBER OPTIC DATA LOGGER	11
3.	HARDWARE INFORMATION.....	14
3.1.	FEATURES	14
3.3.	PDS-220Fx SELECTION GUIDE	16
3.4.	PIN ASSIGNMENTS	17
4.	SETTING UP THE PDS-220FX MODULE.....	19
5.	CONFIGURATION VIA A WEB BROWSER.....	26
5.1.	CONNECTING TO THE PDS-220Fx MODULE	26
5.2.	NETWORK SETTINGS	27
5.3.	IP FILTER SETTING	30
5.4.	COM PORT SETTINGS.....	31
5.5.	MISCELLANEOUS SETTINGS	37
6.	CONSOLE/TELNET COMMANDS LIST	39
6.1.	OPERATION FLOWCHART	39
6.2.	SWITCHING BETWEEN INIT/NORMAL MODES	40
6.3.	COMMAND LIST	41
APPENDIX A: LINKING TO A DEVELOPMENT PC		63
APPENDIX B: FRAME GROUND		66
GLOSSARY		67
1.	ARP (ADDRESS RESOLUTION PROTOCOL)	67
2.	CLIENTS AND SERVERS	67
3.	FIRMWARE.....	67
4.	GATEWAY	68

5.	ICMP (INTERNET CONTROL MESSAGES PROTOCOL)	68
6.	INTERNET	68
7.	IP (INTERNET PROTOCOL) ADDRESS	68
8.	MAC (MEDIA ACCESS CONTROL) ADDRESS	68
9.	OPTICAL FIBER	68
10.	PACKET	69
11.	PING	69
12.	RARP (REVERSE ADDRESS RESOLUTION PROTOCOL)	69
13.	SOCKET	69
14.	SUBNET MASK	69
15.	TCP (TRANSMISSION CONTROL PROTOCOL)	70
16.	TCP/IP	70
17.	UDP (USER DATAGRAM PROTOCOL)	70
FAQ		71
1.	HOW DO I ACCESS A REMOTE PDS-220Fx THAT IS SITUATED BEHIND AN NAT OR FIREWALL?	71
2.	HOW DO I OPEN A VIRTUAL COM PORT GREATER THAN "COM 9" BY CALLING CREATEFILE() WIN32 API?.....	72
3.	DOES THE VxCOMM DRIVER (PC) SUPPORT AUTO-RECONNECTION AFTER FIXING A NETWORK BREAK?	73
4.	WHY DOESN'T THE VxCOMM DRIVER (PC) RECEIVE DATA FROM THE PDS-220Fx MODULE?	74
5.	DOES TRANSMISSION SPEED BECOME FASTER WHEN A SERIAL DEVICE IS WORKING WITH SERIAL TO FIBER OPTIC DEVICE SERVERS?	75
6.	WHY DOES THE PDS-220Fx MODULE FAIL ON A PUBLIC INTERNET CONNECTION?	77
7.	CAN I USE THE SetCommState() API TO CHANGE THE BAUD RATE/DATA FORMAT SETTINGS OF A VIRTUAL COM PORT?	79
8.	HOW MANY PCs CAN BE CONNECTED TO A SINGLE PDS-220Fx DEVICE?	79
9.	CAN I SEARCH FOR OR CONNECT TO THE PDS-220Fx IF THE IP ADDRESS OF MY PC IS NOT IN THE PDS-220Fx IP FILTER LIST? HOW CAN I SOLVE THIS PROBLEM?	81

Packing List

The shipping package includes the following items:

- One PDS-220Fx series hardware module
- One printed quick start guide
- One software utility CD



Note:

If any of these items is missed or damaged, contact the local distributor for more information. Save the shipping materials and cartons in case you want to ship in the future.

More Information:

Documentations

CD:\NAPDOS\PDS\PDS-220Fx\Document\

VxComm Driver (Virtual COM)

CD:\NAPDOS\Driver\VxComm_Driver

Firmware

CD:\NAPDOS\PDS\ PDS-220Fx\VxComm\Server(PDS)

MiniOS7

CD:\NAPDOS\PDS\ PDS-220Fx\OS_image

1. Introduction

The PDS-220Fx series is a family of Programmable Device Servers, also known as "Serial-to-Fiber gateways", that are designed to enable optical fiber connectivity to be added to RS-232/422/485 devices. The user-friendly VxComm Driver/Utility allows users to easily turn the built-in COM ports of the PDS-220Fx series into standard COM ports on a PC. By virtue of its protocol independence, a small-core OS and high flexibility, the PDS- 220Fx series is able to meet the demands of every network-enabled application.

The PDS-220Fx series includes a powerful and reliable Xserver programming structure that allows you to rapidly design robust custom Fiber optics applications. The built-in, high-performance MiniOS7 boots up the PDS-220Fx in just one second and gives you fastest responses.

1.1. Why Fiber Optic Solutions?

Fiber optic communication permits transmission of data over longer distances than other forms of communication because the signals travel along the fiber with minimum loss and no crosstalk. Fiber optics provides the following important features:

- Immunity to electromagnetic interference (EMI) — Motors, relays, welders and other industrial equipment generate a tremendous amount of electrical noise that can cause major problems with copper cabling.
- High electrical resistance, making it safe to use near high-voltage equipment or between areas with different earth potentials.
- No sparks — important in environments that contain flammable or explosive gas.
- No electromagnetic radiation, and it is difficult to tap into the signal without causing disruption, which is an important factor in high-security environments.

Because of these reasons, optical fibers have largely replaced copper wire communications in core networks in the developed world.

The diagram illustrates the system architecture for the NS-200AFx. It shows the following components and connections:

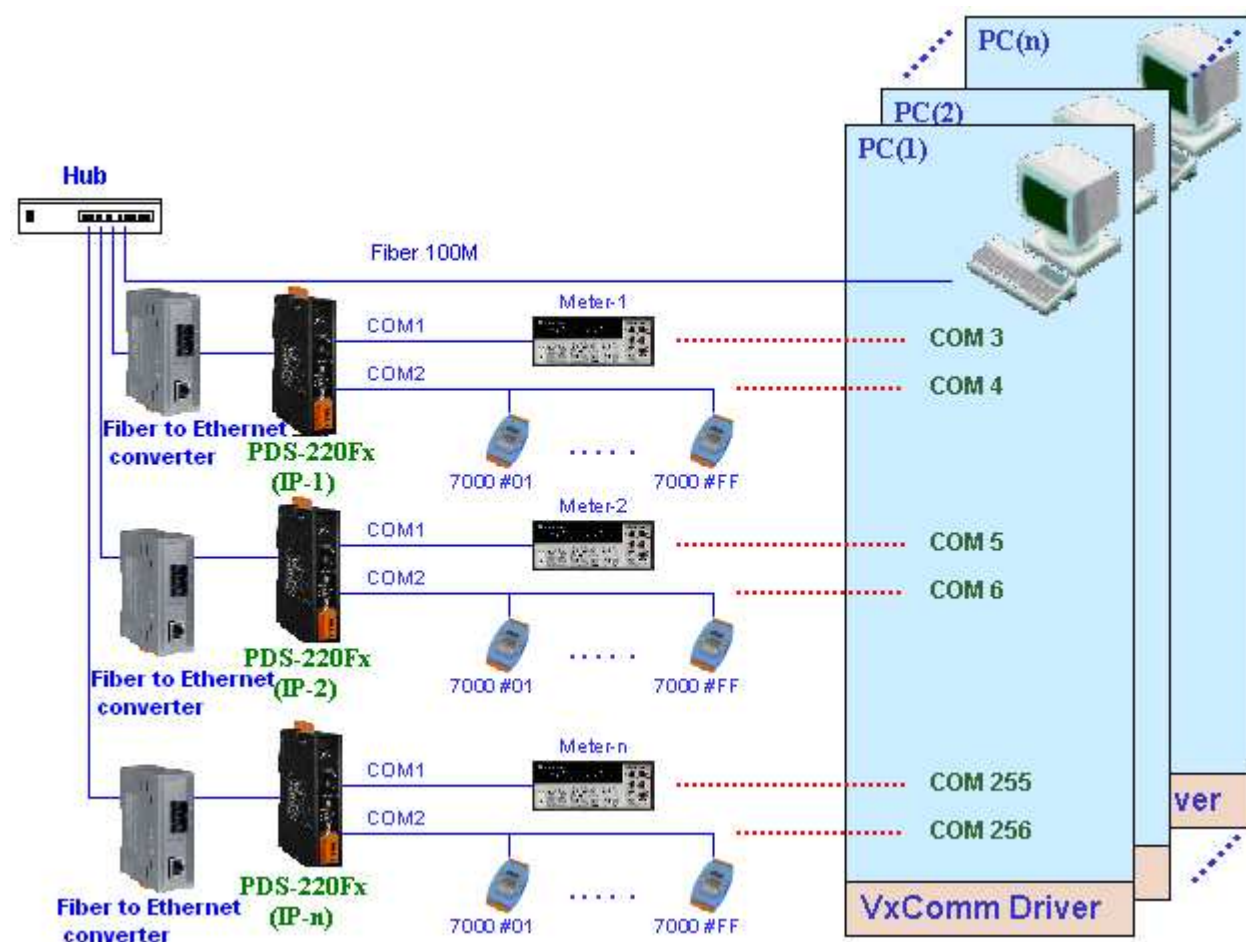
- NS-200AFx**: The main processing unit, connected to the NS-208 via a **Fiber** cable.
- NS-208**: A communication unit that connects to a **PC + VxComm** via an **Ethernet** cable.
- PDS-220Fx**: A power distribution unit that receives power from a **Power Supply** (7000 #01 to 7000 #FF) and distributes it to the NS-200AFx and various I/O modules via **COM2** and **COM1** lines.
- Power Supply**: Provides power to the system, with multiple units (7000 #01 to 7000 #FF) connected to the PDS-220Fx.
- I/O Modules**: Various modules connected to the system via **COM3** and **COM4** lines, including:
 - RS-232** modules (connected to a PLC and Instrument).
 - RS-422/485** modules (connected to M-7000 / I-7000 I/O modules).
 - I-87K I/O modules** (connected to a Bar Code Reader and Modem).



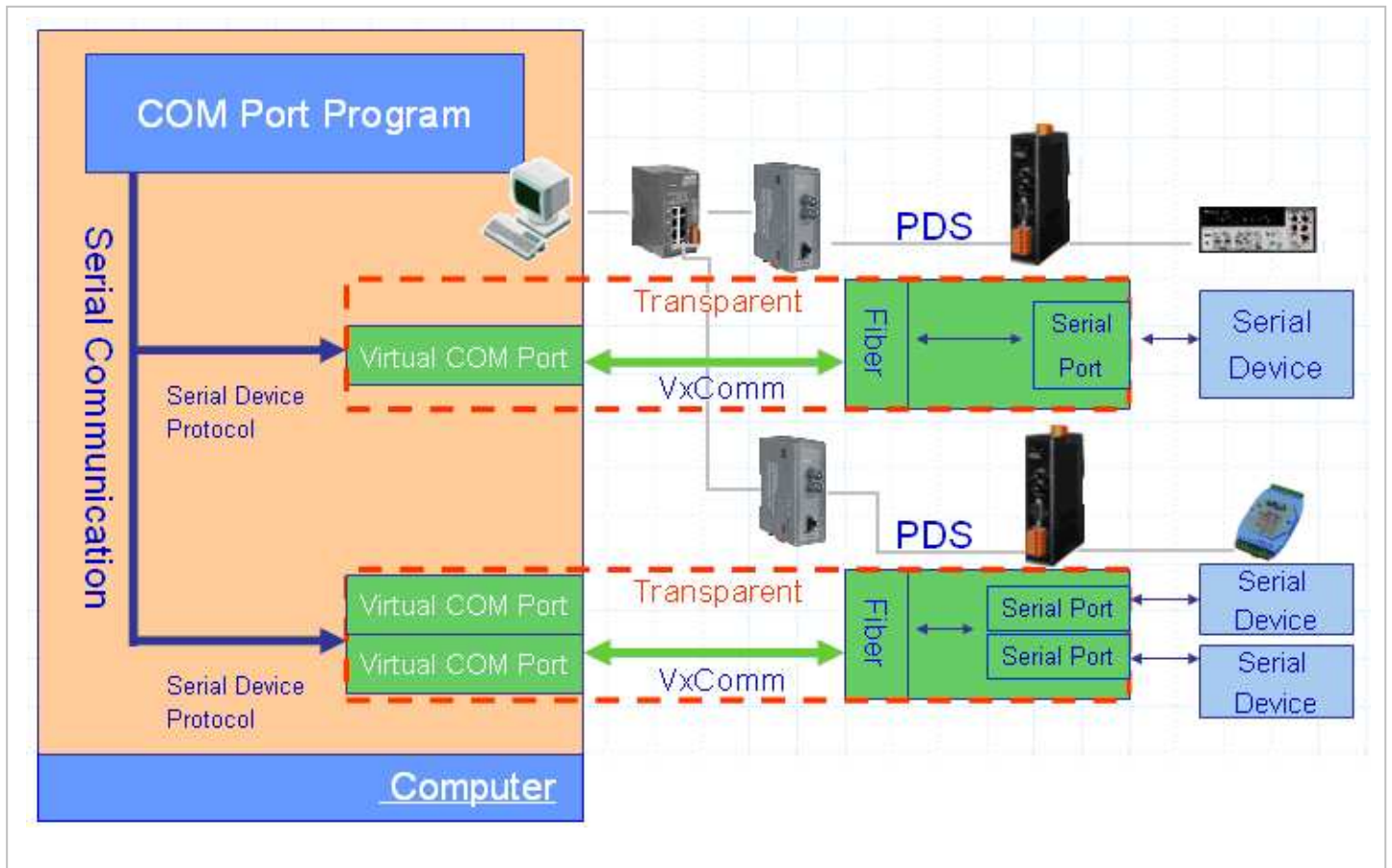
1.2. Why VxComm Technology?

In general, writing code for a TCP/IP program is more difficult than for a COM port program, or perhaps the COM port communication system was built many years ago.

As a result, a new technology, **VxComm**, was developed to **virtualize the COM ports of the PDS-220Fx to allow up to 256 COM ports to be used on the central computer.** The VxComm driver saves time when accessing serial devices through the fiber optic network without the need for reprogramming the COM port software on the PC.



The VxComm driver controls all the details of the TCP/IP programming and with the assistance of PDS-220Fx and VxComm technology, your COM port program will be able to access your serial devices through the fiber optic network in the same way as it would through a standard COM port.



1.3. Why Web Server Technology?

Web server technology enables configuration of the PDS-220Fx via a standard web browser interface, e.g. Google Chrome, Firefox, Internet Explorer or Mozilla, etc. This means that it is easy to check the configuration of the PDS-220Fx via a fiber optic network without needing to install any other software tools, thereby reducing the user's learning curve.

The screenshot shows a web browser window displaying the 'PDS-220Fx COM PORT Setup Page'. On the left is a navigation menu with links: 'Firmware Version', 'Network Setting', 'COM Port Setting' (which is highlighted), and 'Misc. Setting'. The main content area has a light green background and contains three sections:

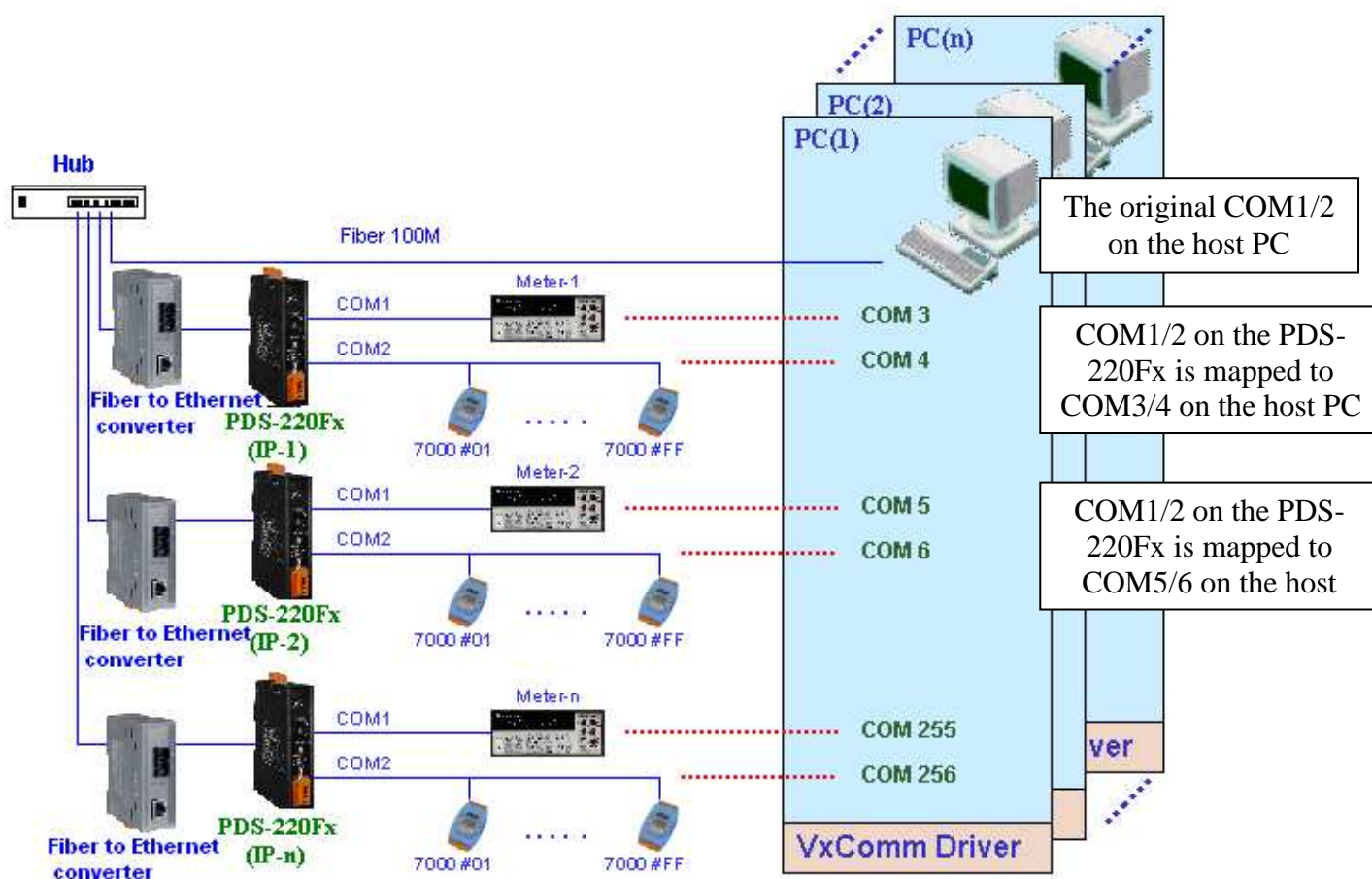
- COM Port Setting[saved in EEPROM]**: A table showing settings for COM 1 and COM 2. Both are configured with Baud Rate 115200, 8 data bits, No parity, 1 stop bit, FTL=1, DBDT=0:0, EndChar=00, M0, ST=100, and MAT=0.
- COM Port Current Used Setting**: A table showing the same configuration for COM 1 and COM 2 as the saved settings.
- Configure COM PORT**: A form for configuring a specific COM port. It includes dropdown menus for Port (COM 1), Baud Rate (115200), Data Bit (8), Parity (None), Stop Bit (1), and Rx Fifo Trigger Level (1). It also has input fields for Data Buffered Delay Time (DBDT) in ms and End Char in hex. The Operation Mode is set with radio buttons to M0 (Transparent Mode), M1 (Slave Mode), M2 (Half-Slave Mode), and (*)M3 (Modbus Gateway). There are also input fields for Slave Timeout in ms and Master Ack Timeout (MAT) in ms, with a default of 0:DISABLE. At the bottom of this section are two checkboxes: 'Save current setting to EEPROM' and 'Apply current setting'. A 'SET COM PORT' button is located at the very bottom of the form.

2. Typical Applications for the PDS-220Fx

2.1. RS-232/485/422 Device Networking

--- Using Virtual COM Technology ---

The PDS-220Fx series is designed to allow RS-232/485/422 devices to be connected to a fiber optic network. The VxComm utility allows the built-in PDS-220Fx COM port to be virtualized to a standard COM port on a host PC, as shown below:



In the configuration above, Meter-1 is virtualized to link to COM3 on the host PC. Therefore a program originally designed for the MS-COMM standard can still access the meter **without the need for any modification to the program.**

2.2. Fiber I/O Applications

The PDS series provides fiber optic I/O solution:

Linking to I-7000 Series Modules

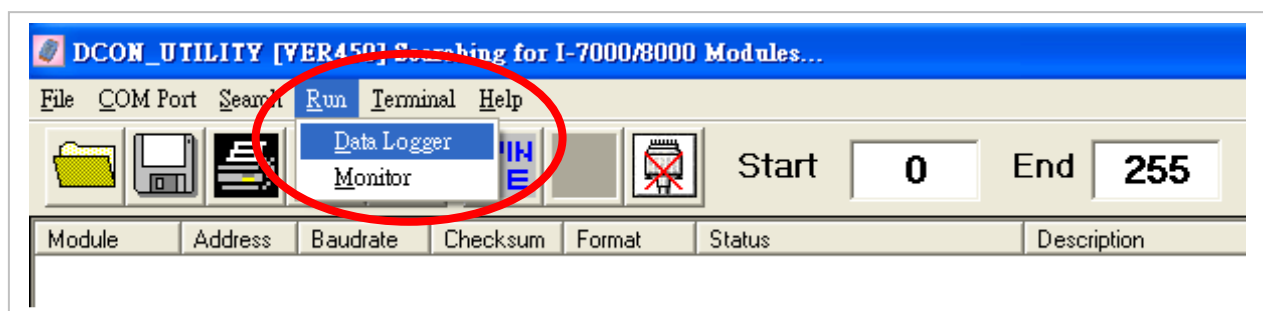
The I-7000 series provides a variety of I/O operations, such as D/I, D/O, A/D, D/A, Counter and Frequency Measurement, etc. The I-7000 series was originally designed to be used with RS-485 networks, so COM2 on the PDS-220Fx can be used to link to I-7000 series modules. These modules are very robust and work well in harsh industrial environments.

By using VxComm technology, programs on the host PC that support serial devices can be upgraded from a RS-485 network to a fiber optic network without requiring any modifications to the program. Refer to Sec. 2.1 for more information.

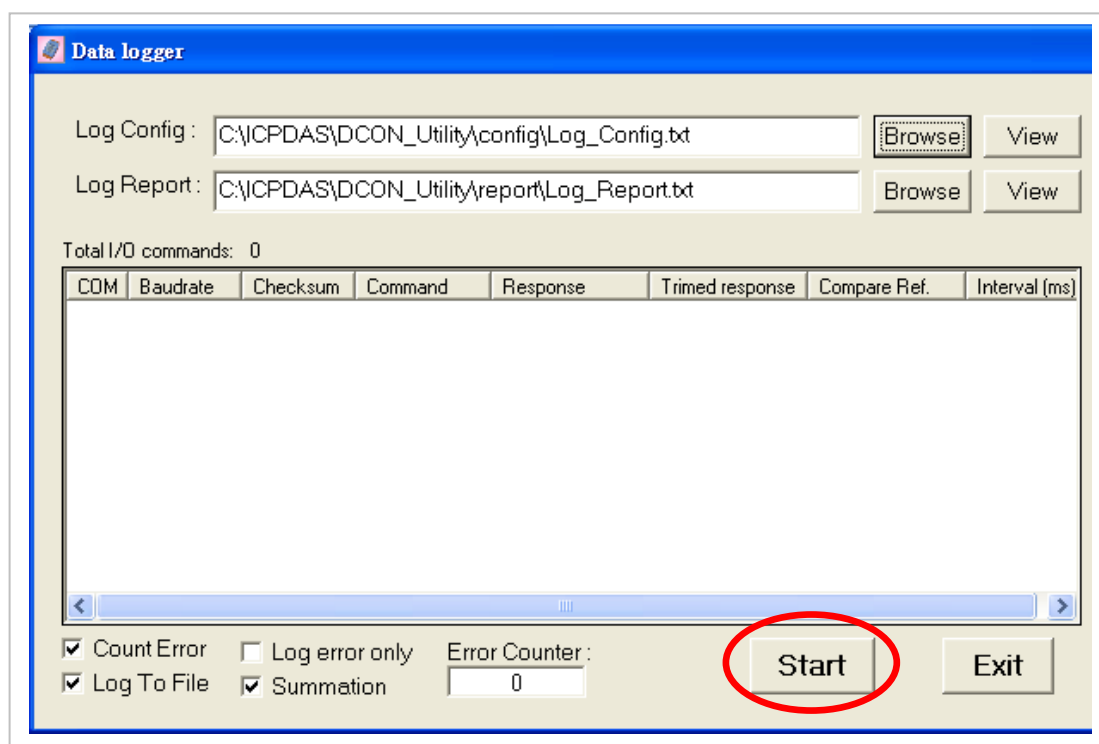
2.3. Configurable Fiber Optic Data Logger

Using the VxComm driver, PDS-220Fx + I-7000 modules can be virtualized to become COM port + I-7000 modules located on the host PC, and then the Data Logger in the DCON Utility can be used to access data from the I-7000 via the fiber optic network. Signal data originating from the I-7000 modules can be analyzed using MS-Excel without the need to create any custom programs

1. The DCON utility includes a data logger function, as show below:



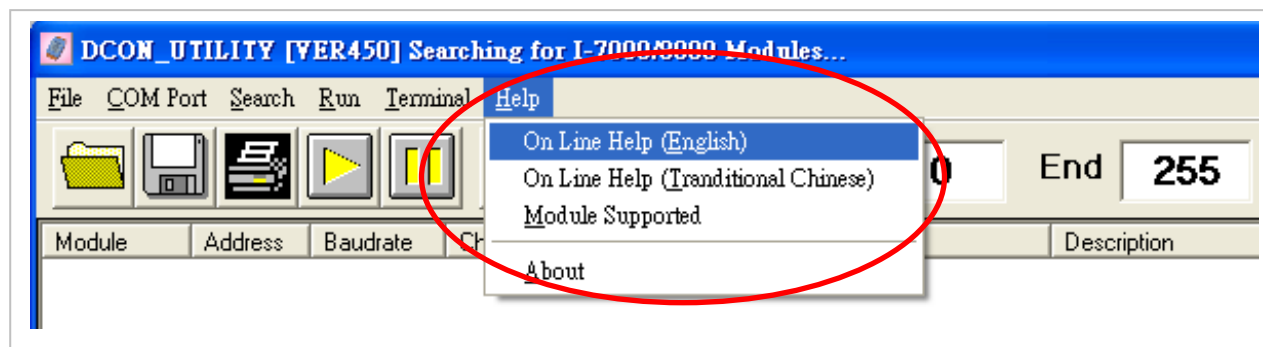
2. Configure the system connection, as shown below, and click the **“Start”** button to begin logging data.



3. Open the log file in MS-Excel to read the log data, as shown in the example below:

Microsoft Excel - report.log										
File Edit View Insert Format Tools Data Window Help										
A1 Start log at										
	A	B	C	D	E	F	G	H	I	J
1	Start log at	11/26/01	#####							
2	14:36:1:0	2	9600	0	#010	>+000.00	>+000.62	1000		
3	14:36:2:40	2	9600	0	#010	>+000.00	>+000.65	1000		
4	14:36:3:30	2	9600	0	#010	>+000.00	>+000.65	1000		
5	14:36:4:20	2	9600	0	#010	>+000.00	>+000.60	1000		
6	14:36:5:10	2	9600	0	#010	>+000.00	>+000.66	1000		
7	14:36:6:0	2	9600	0	#010	>+000.00	>+000.66	1000		
8	14:36:7:40	2	9600	0	#010	>+000.00	>+000.66	1000		
9	14:36:8:30	2	9600	0	#010	>+000.00	>+000.71	1000		
10	14:36:9:20	2	9600	0	#010	>+000.00	>+000.69	1000		
11	14:36:10:1	2	9600	0	#010	>+000.00	>+000.67	1000		
12	14:36:11:0	2	9600	0	#010	>+000.00	>+000.71	1000		
13	14:36:12:4	2	9600	0	#010	>+000.00	>+000.65	1000		
14	14:36:13:3	2	9600	0	#010	>+000.00	>+000.72	1000		
15	14:36:14:2	2	9600	0	#010	>+000.00	>+000.66	1000		
16	14:36:15:1	2	9600	0	#010	>+000.00	>+000.60	1000		
17	14:36:16:0	2	9600	0	#010	>+000.00	>+000.70	1000		

By using the I-7000 DCON utility and MS-Excel in conjunction with **VxComm technology**, the signal data of I-7000 modules from the fiber optic network can be analyzed without the need to create any custom programs. For more information about the **log function** refer to the online help feature (English and Traditional Chinese) of the DCON utility.



3. Hardware Information

3.1. Features

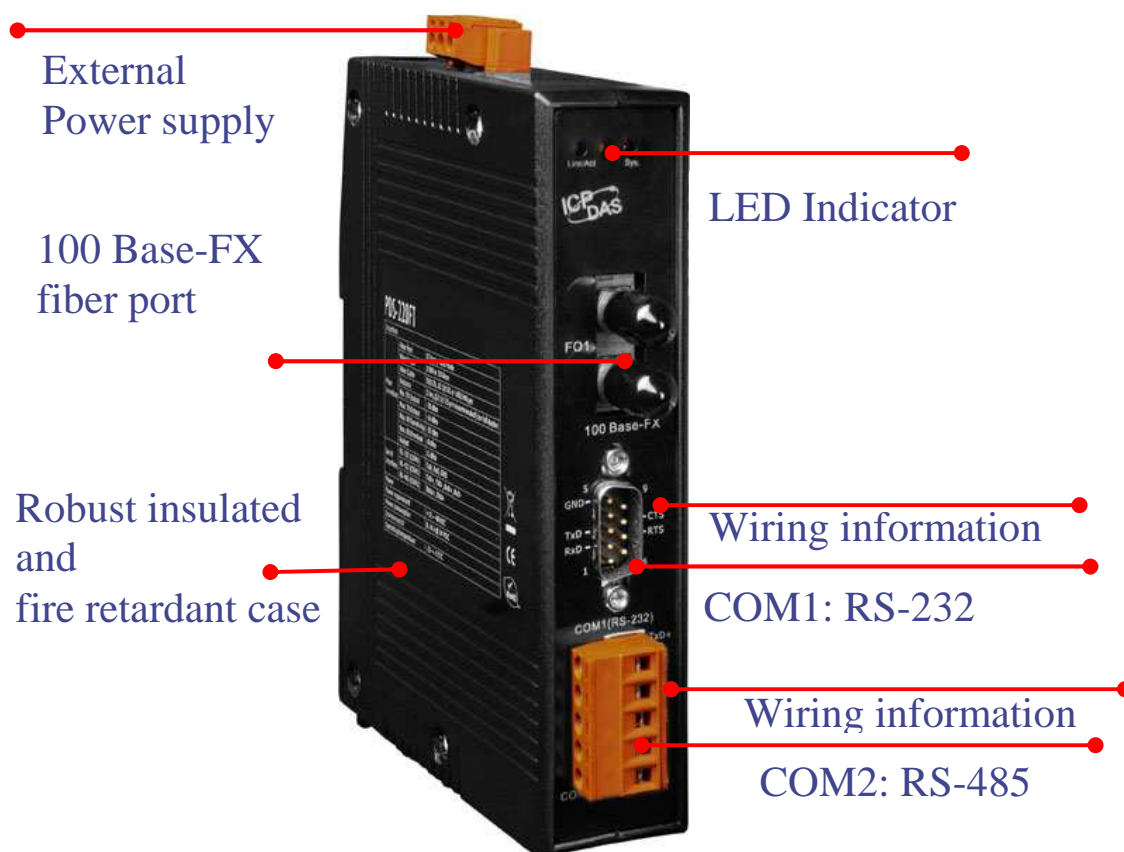
- Built-in Watchdog timer for use in harsh environments
- Built-in self-tuning ASIC controller on the RS-485 port
- Built-in 100 Base-FX optical fiber port
- Built-in OS: ICP DAS MiniOS7
- ODM service is available

3.2. Specifications

Models	PDS-220FT	PDS-220FC	PDS-220FCS	PDS-220FCS-60
System				
CPU	80186, 80MHz or compatible			
SRAM	512 KB			
Flash	512 KB; Erase unit is one sector (64 KB); 100,000 erase/write cycles			
EEPROM	16 KB; Data retention: 40 years; 1,000,000 erase/write cycles			
Watchdog	Yes			
LED Indicators	Sys, Link/Act			
Init Pin	Yes			
Interface				
Fiber Port	100 Base-FX, ST connector	100 Base-FX, SC connector	100 Base-FX, SC connector	100 Base-FX, SC connector
Mode	Multi-mode fiber cables: 50/125, 62.5/125 or 100/140 μm Wavelength 1300 or 1310 nm Min. TX Output: -20 dBm Max. TX Output: -14 dBm Max. RX Sensitivity: -32 dBm Max. RX Overload: -8 dBm Budget: 12 dBm		Single mode fiber cables: 8.3/125, 8.7/125, 9/125 or 10/125 μm Wavelength 1300 or 1310 nm Min. TX Output: -15 dBm, Max. TX Output: -8 dBm Max. RX Sensitivity: -34 dBm, Max. RX Overload: -5 dBm Budget: 19 dBm	Single mode fiber cables: 8.3/125, 8.7/125, 9/125 or 10/125 μm Wavelength 1300 or 1310 nm Min. TX Output: -5 dBm, Max. TX Output: 0 dBm Max. RX Sensitivity: -35 dBm, Max. RX Overload: -5 dBm Budget: 30 dBm
Distance	2 km, (62.5/125 μm recommended) for full duplex		30 Km, (9/125 μm recommended) for full duplex	60 Km, (9/125 μm recommended) for full duplex
Serial Ports				
COM1	Male DB-9, 5-wire RS-232 (RxD, TxD, CTS, RTS, GND) Note: +/- 4 kV ESD Protection			
COM2	Removable Terminal Block, 2-wire RS-485 (D+, D-, GND) with Self-tuner ASIC or 4-wire RS-422 (TxD+, TxD-, RxD+, RxD-, GND) Note: +/- 4 kV ESD Protection			
UART	16c550 or compatible			
Baud rate	115200 bps Max.			
Data bits	7, 8			
Parity	None, Odd, Even, Mark, Space			
Stop bits	1			
General				
Power Input	+12 ~ +48 Vdc (non-regulated)			

Power Consumption	0.14 A @24 Vdc
Protection	Power reverse polarity protection
Frame GND	Yes, for EMS Protection.
Dimensions	25 mm x 168 mm x 135 mm (W x L x H)
Case	Fire Retardant Plastic (UL94-V0 level)
Mounting	DIN-Rail
Operating Temperature	-25°C ~ +75°C
Storage Temperature	-30°C ~ +85°C
Humidity	10% ~ 90% RH, non-condensing

PDS-220Fx Front View



3.3. PDS-220Fx Selection Guide

Model	CPU	SRAM	Flash	Fiber Port	Mode	Distance	COM1	COM2
PDS-220FT	80 MHz	512 KB	512 KB	100 Base-FX, ST connector	Multi	2 km	5-wire	RS-422
PDS-220FC				100 Base-FX, SC connector	Multi	2 km		
PDS-220FCS				100 Base-FX, SC connector	Single	30 km	RS-232	RS-485
PDS-220FCS-60				100 Base-FX, SC connector	Single	60 km		

5-wire RS-232: RxD, TxD, CTS, RTS, GND

4-wire RS-422: TxD+, TxD-, RxD+, RxD-

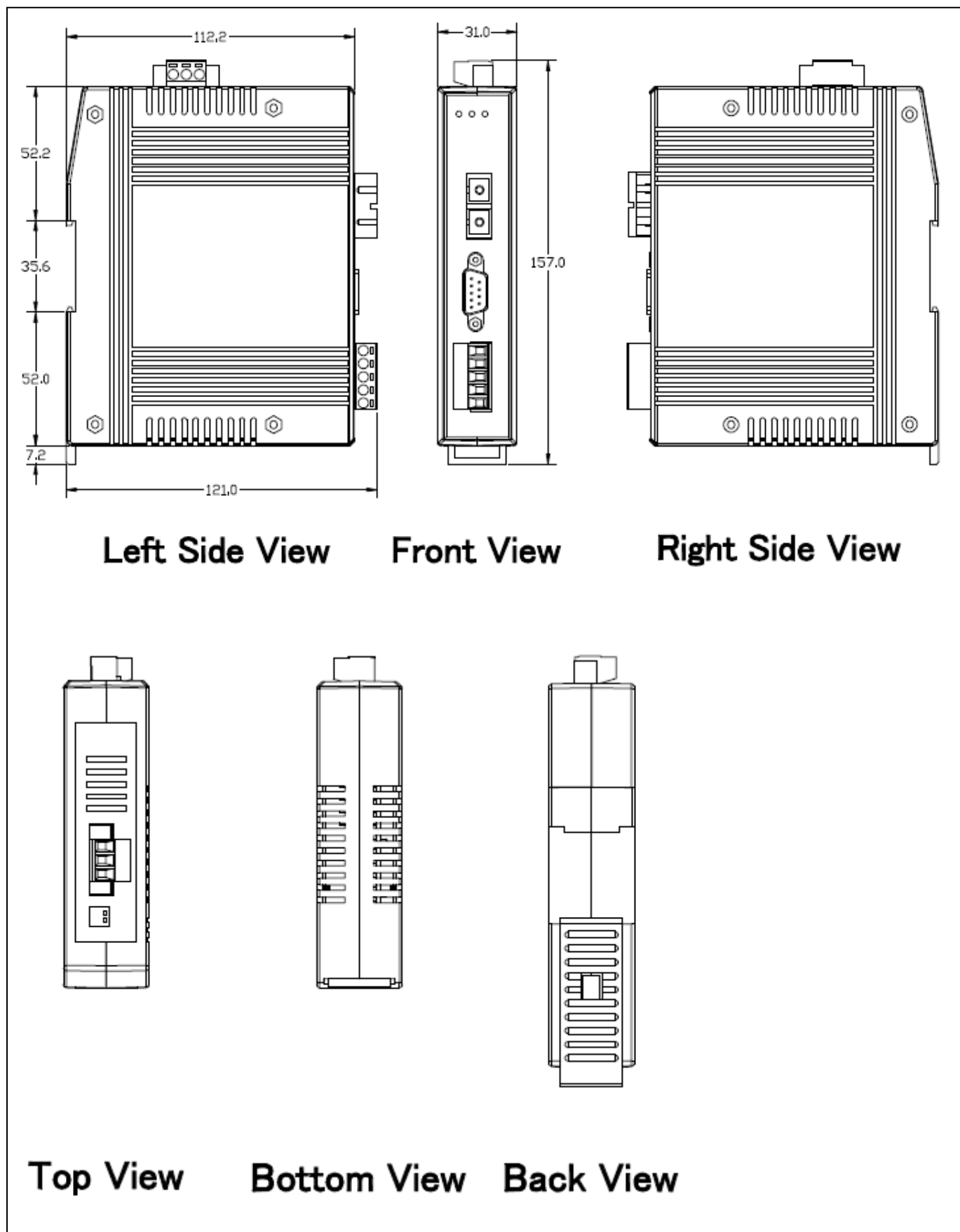
2-wire RS-485: Data+, Data-

3.4. Pin Assignments

The pin assignments for the PDS-220Fx models are:



Dimensions



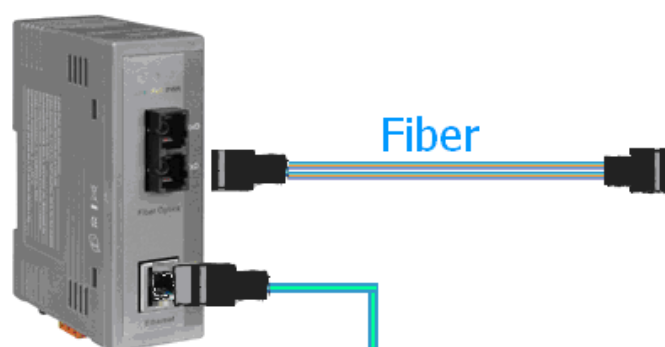
4. Setting up the PDS-220Fx module

Step 1. Connect the PDS-220Fx module to the fiber optic network

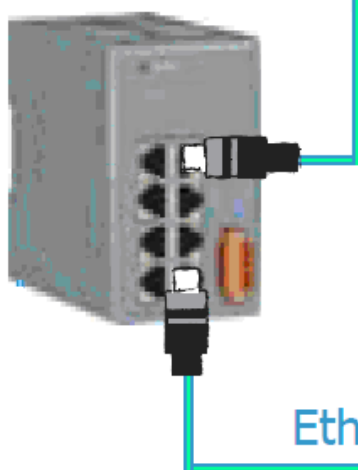
Before connecting the PDS-220Fx module to a fiber optic network, the following items are needed:

1. Power Supply: 12 ~ 48 V_{DC} (e.g. DP-665:
http://www.icpdas.com/products/Accessories/power_supply/power_list.htm)
2. Fiber to Ethernet Converter (e.g. NS-200AFT
http://www.icpdas.com/products/Switch/industrial/industrial_list.htm)
3. Check that the network settings on the PC are correctly configured and the Ethernet connection is functioning normally.
4. Disable or correctly configure the Windows firewall and any Anti-Virus software firewall first or else the “**Search Servers**” function in the VxComm Utility may not work correctly. (Contact your System Administrator for more details if you are unsure how to do this.)
5. Connect the PDS-220Fx module to the fiber optic network as shown on the following page and switch on the power.
6. Make sure the LED indicator on the PDS-220Fx is flashing.
7. Install the VxComm Utility on your PC
The software is located at:
CD: \Napedos\7188e\tcp\vxcomm\driver(pc)\
[http://ftp.icpdas.com/pub/cd/8000cd/napedos/7188e/tcp/vxcomm/driver\(pc\)/](http://ftp.icpdas.com/pub/cd/8000cd/napedos/7188e/tcp/vxcomm/driver(pc)/)

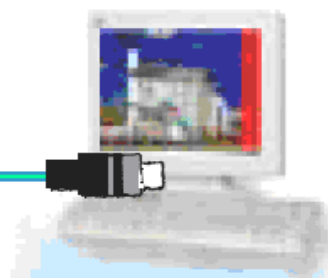
Ethernet to Fiber optic converter (NS-200AFx)



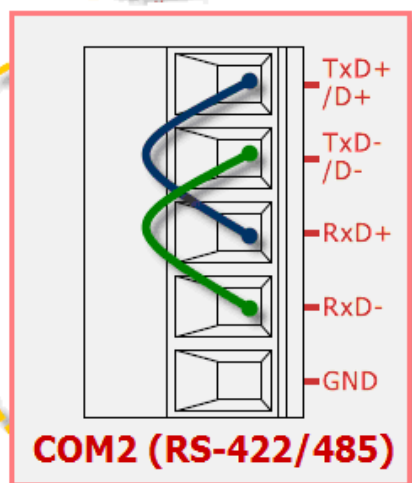
Ethernet Hub (NS-208)



PC + VxComm



PDS-220Fx



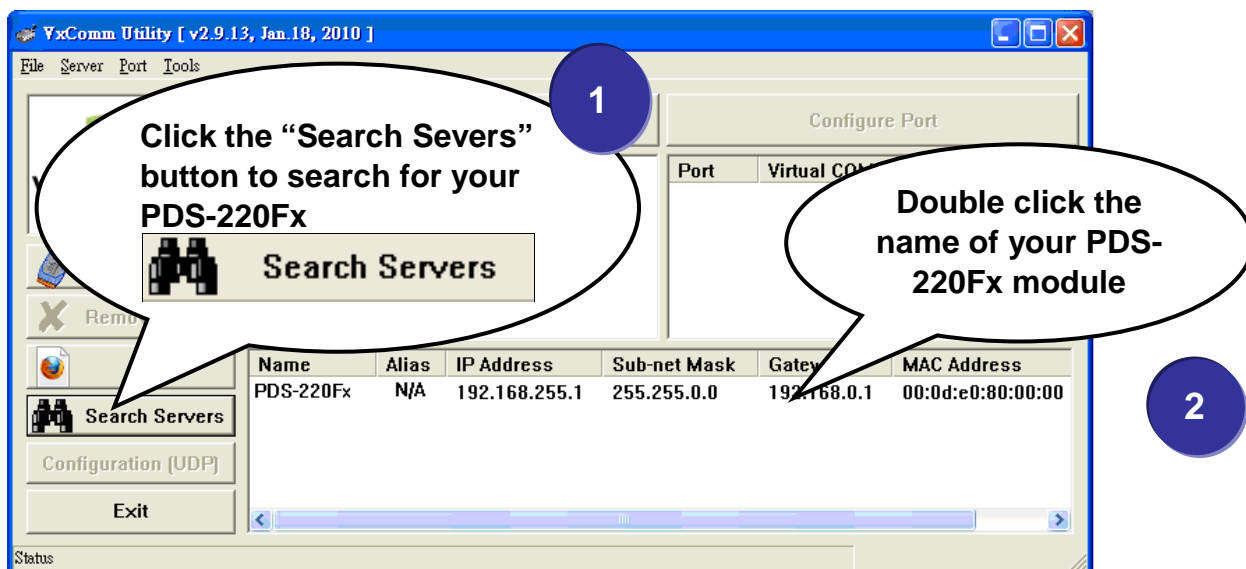
Connect both the NS-200AFx module and your computer to the same sub network or the same Switch.

Short the RXD and TXD pins on the PDS-220Fx module to execute a self-test.

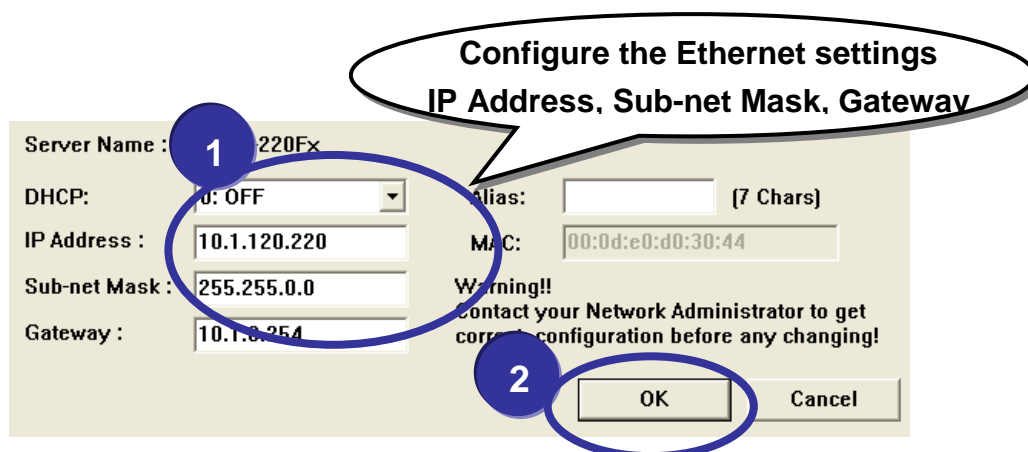
Supply 24 V_{DC} (12 ~ 48 V_{DC}) power to the PDS-220Fx module.

Step 2: Search for the PDS-220Fx module on the Ethernet network

1. Execute the VxComm Utility and then search the network for your PDS-220Fx module.
2. Double click the name of the PDS-220Fx to open the configuration settings dialog box.

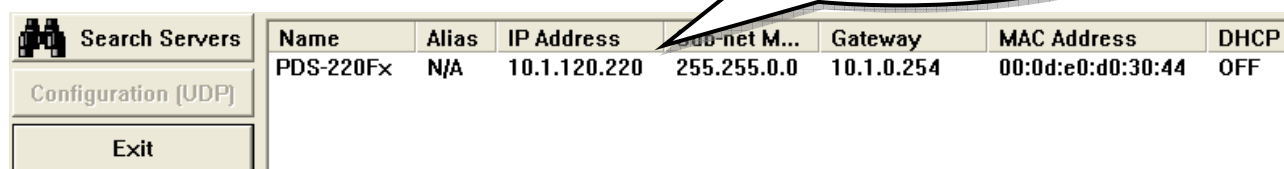



3. Contact your Network Administrator to obtain the correct network configuration details, such as IP/Mask/Gateway etc. Enter the network settings and then click the “OK” button. The PDS-220Fx module will be restarted immediately.

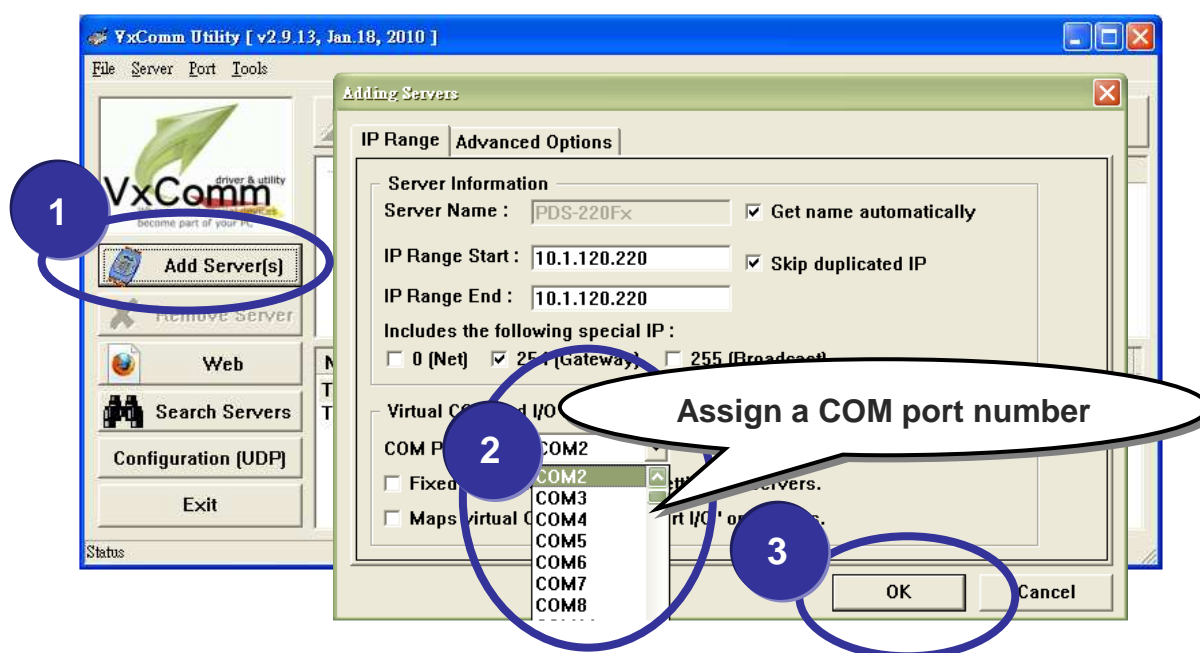


Step 3. Configuring Virtual COM Ports

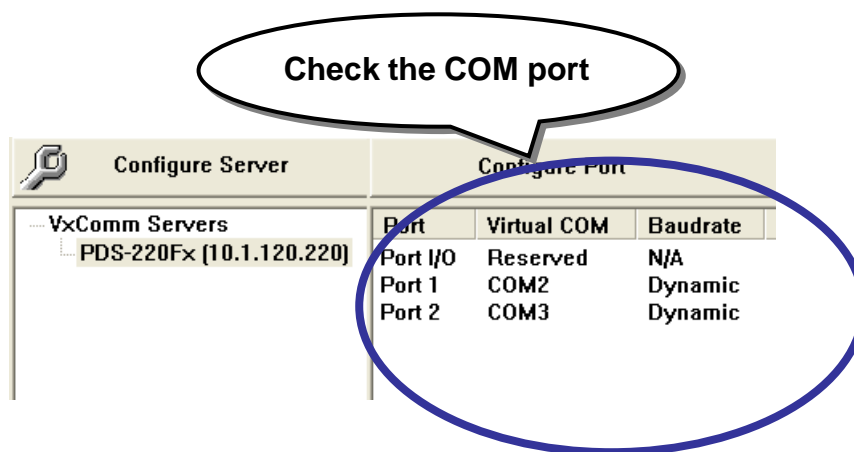
1. Make sure that the new IP/Mask/Gateway settings have been saved, click the “Search Servers” button again to search for your PDS-220Fx module and then click the name of your PDS-220Fx module once to select it.



2. Click the  **Add Server(s)** button, assign a COM port number and click the “OK” button to save your settings.



3. Check the Virtual COM port mappings on the PC.

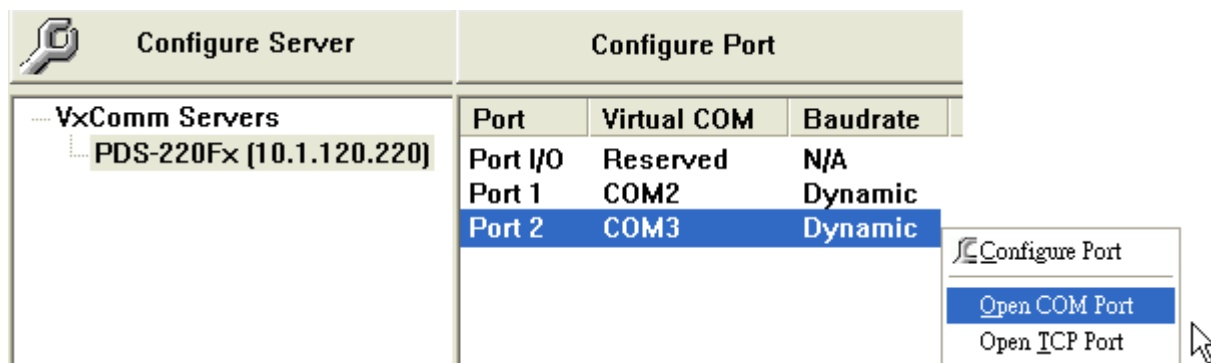


4. Select “**Restart Driver**” from the “**Tools**” menu, and then click the “**Restart Driver**” button.

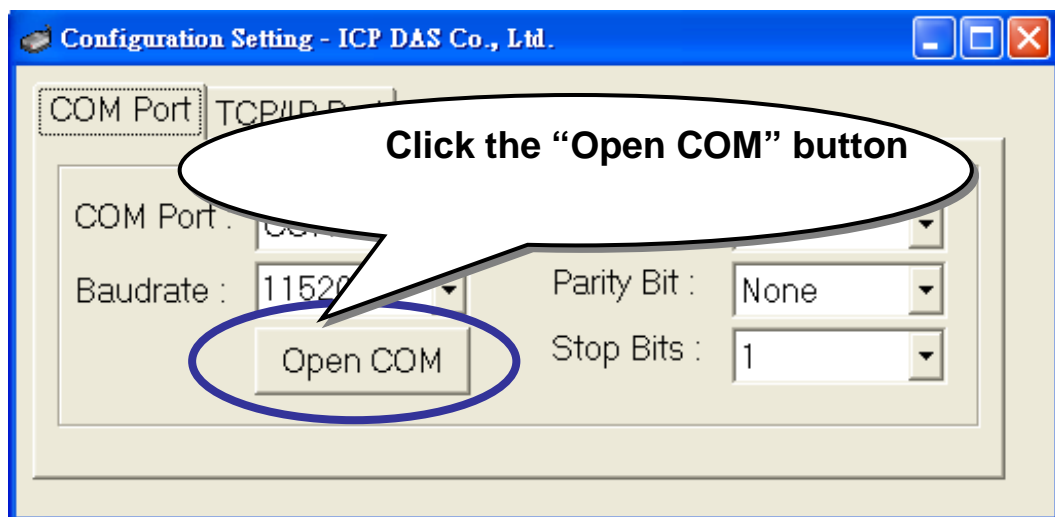


Step4: Testing your PDS-220Fx

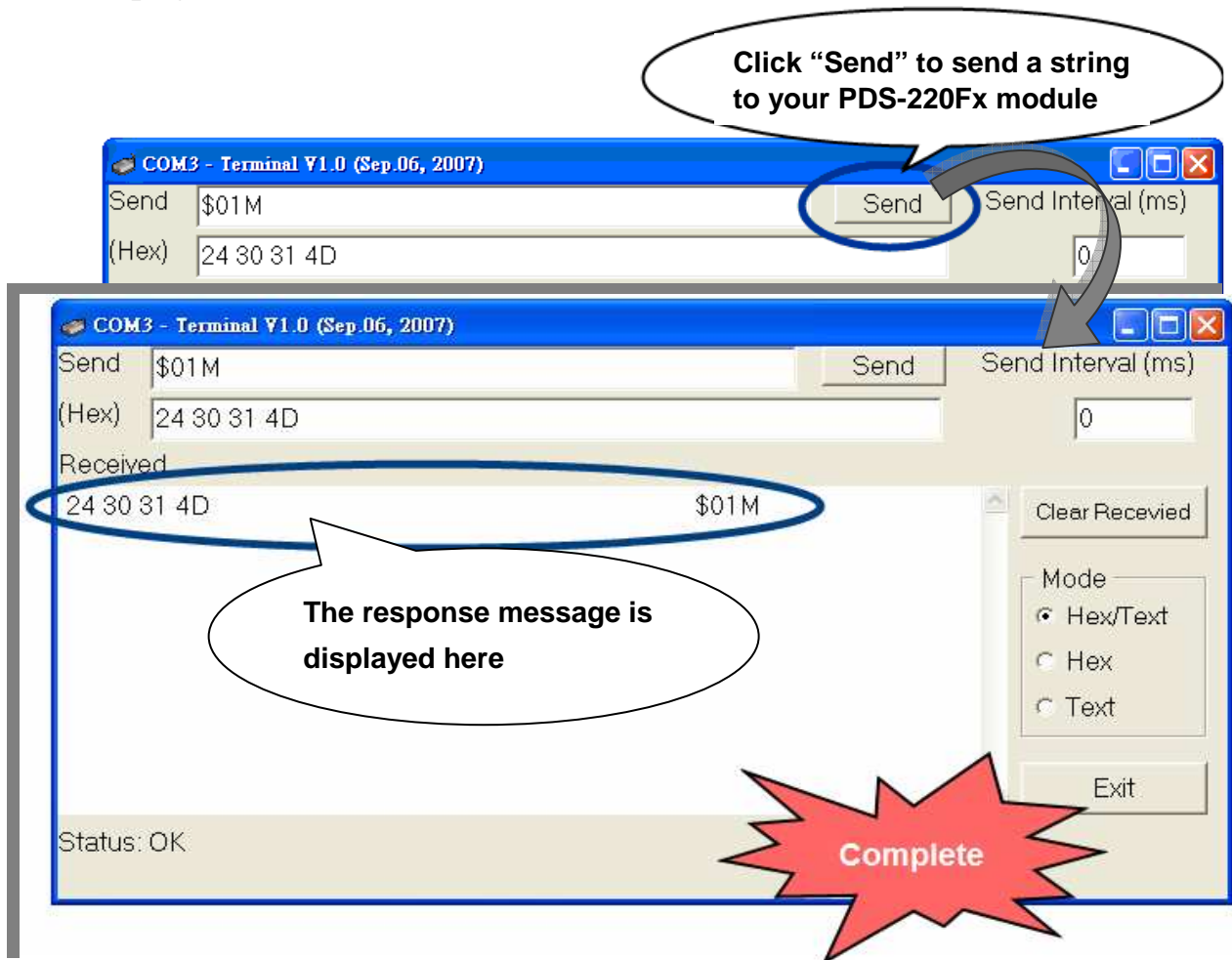
1. Short the "RxD" and "TxD" pins of COM2 on the PDS-220Fx module, as shown in the diagram in step 1.
2. Right click Port 1 and then choose the "Open COM Port" option.



3. Check that the configuration for the COM port is correct and then click the "Open COM" button.



4. Type a string in the send field then click the send button. If a response is received, it will be displayed in the received field.



5. If the test is successful, then your COM port program should now be able to work with this Virtual COM port now.

5. Configuration via a Web Browser

Once the PDS-220Fx module has been correctly configured and is functioning normally, the configuration details can be retrieved or amended using either the VxComm Utility or a standard web browser, such as Google Chrome, Firefox, Internet Explorer or Mozilla, etc.

5.1. Connecting to the PDS-220Fx Module



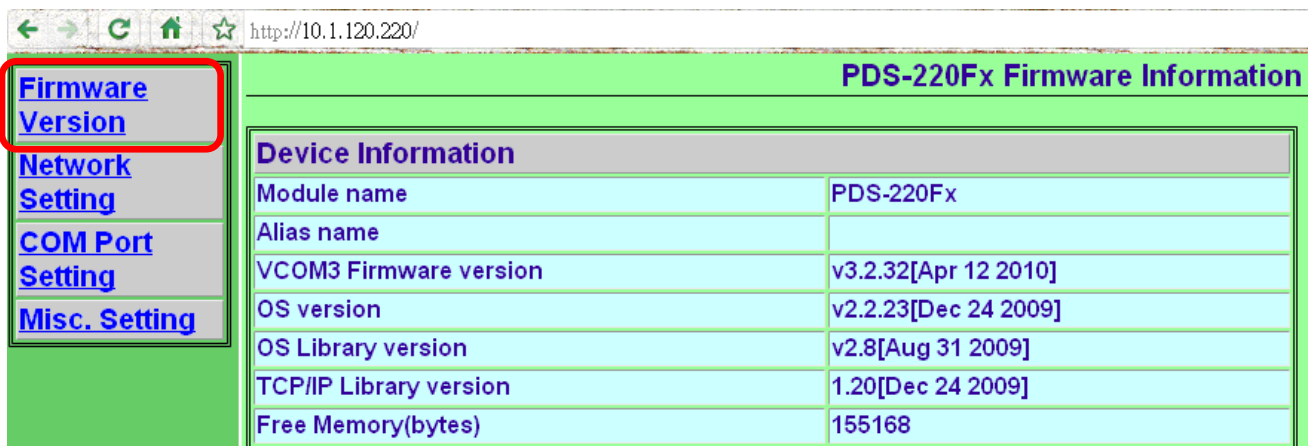
Note: Changing the configuration of the PDS-220Fx can cause client program errors when the Virtual COM port is opened.

Enter the IP Address of the PDS-220Fx module in the URL field and press “Enter” to connect to the PDS-220Fx module.

The screenshot shows a web browser window with the address bar containing `http://10.1.120.220/`, which is circled in red. The page title is "PDS-220Fx Firmware Information". On the left, there is a sidebar with the following links: [Firmware Version](#), [Network Setting](#), [COM Port Setting](#), and [Misc. Setting](#). The main content area is titled "Device Information" and contains a table with the following data:

Module name	PDS-220Fx
Alias name	
VCOM3 Firmware version	v3.2.32[Apr 12 2010]
OS version	v2.2.23[Dec 24 2009]
OS Library version	v2.8[Aug 31 2009]
TCP/IP Library version	1.20[Dec 24 2009]
Free Memory(bytes)	155168

After connecting to the PDS-220Fx, the web browser will show the firmware information.



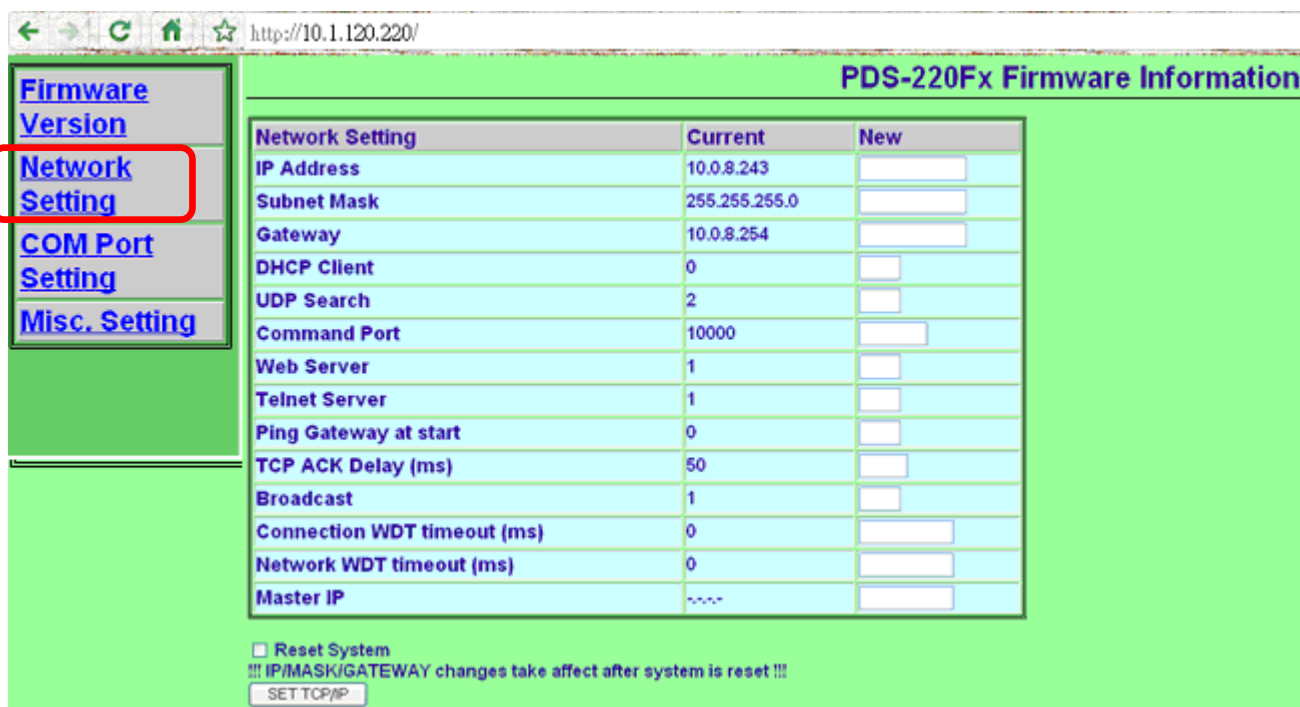
← → ↻ 🏠 ☆ http://10.1.120.220/

Firmware Version | **PDS-220Fx Firmware Information**

Device Information

Module name	PDS-220Fx
Alias name	
VCOM3 Firmware version	v3.2.32[Apr 12 2010]
OS version	v2.2.23[Dec 24 2009]
OS Library version	v2.8[Aug 31 2009]
TCP/IP Library version	1.20[Dec 24 2009]
Free Memory(bytes)	155168

5.2. Network Settings



← → ↻ 🏠 ☆ http://10.1.120.220/

Network Setting | **PDS-220Fx Firmware Information**

Network Setting	Current	New
IP Address	10.0.8.243	<input type="text"/>
Subnet Mask	255.255.255.0	<input type="text"/>
Gateway	10.0.8.254	<input type="text"/>
DHCP Client	0	<input type="text"/>
UDP Search	2	<input type="text"/>
Command Port	10000	<input type="text"/>
Web Server	1	<input type="text"/>
Telnet Server	1	<input type="text"/>
Ping Gateway at start	0	<input type="text"/>
TCP ACK Delay (ms)	50	<input type="text"/>
Broadcast	1	<input type="text"/>
Connection WDT timeout (ms)	0	<input type="text"/>
Network WDT timeout (ms)	0	<input type="text"/>
Master IP	<input type="text"/>

☐ Reset System
!!! IP/MASK/GATEWAY changes take affect after system is reset !!!

Network (TCP/IP) Setup page

- ✚ IP Address
- ✚ Subnet Mask
- ✚ Gateway

The three items above are the most important network settings and should always correspond to the LAN definition. If they do not match, the PDS-220Fx module will not operate correctly. If the settings are changed while the module is operating, any connections to Virtual COM port-based applications currently in use will be lost and an error will occur.

✦ **DHCP Client:** 0 = disabled, 1 = enabled

It is recommended that the DHCP Client setting is kept as disabled and that static network settings are used. This ensures that your PDS-220Fx always uses a fixed IP Address, and you don't need to continually reconfigure the Virtual COM mappings.

✦ **UDP Search:** 0 = disabled, 1 = always enabled.

2 = enable the UDP Search function until another client is connected. (Default)

By keeping the UDP search setting as 2, the PDS loading will be reduced. The VxComm Utility will not be able to search for this module until all of the clients are disconnected from the module.

✦ **Command Port**

The default Command Port is 10000.

✦ **Web Server**

✦ **Telnet Server**

0 = disabled, 1 = enabled

✦ **Ping Gateway at start:** 0 = disabled, 1 = enabled.

If this option is set to 1 (enabled), the PDS-220Fx module will send a ping packet to the gateway during the power-on stage. This function is used to inform the gateway that a PDS-220Fx (itself) has joined the network.

✦ **TCP ACK Delay (ms),** default = 50.

PDS-220Fx does not want to continually send an empty ACK followed by a TCP data packet 1ms later. So it delays transmission a little (TCP ACK Delay), and then combines the ACK and data packet into one. This efficiently reduces the number of packets being transmitted and reduces network loading.

✚ Broadcast

1 = Receive UDP broadcast packets

0 = Reject UDP broadcast packets

✚ Connection WDT timeout (ms): default = 0 (disabled), min. = 10000.

If the PDS-220Fx module does not receive any data from a client PC within the specified “Connection WDT timeout” period, the module will close the connection to the client.

✚ Network WDT timeout (ms): 0 = disabled, min. = 30000,(default = 300000ms)

If the PDS-220Fx module does not receive any data from any of the clients within the specified “Network WDT timeout” period, the module will reboot itself. The default setting is 300000 ms (= 300 seconds).

This setting is the same as the “SystemTimeout” setting (unit: ms) on the Console/Telnet command, and is the same as the “/STxxx” command line parameter (unit: seconds).

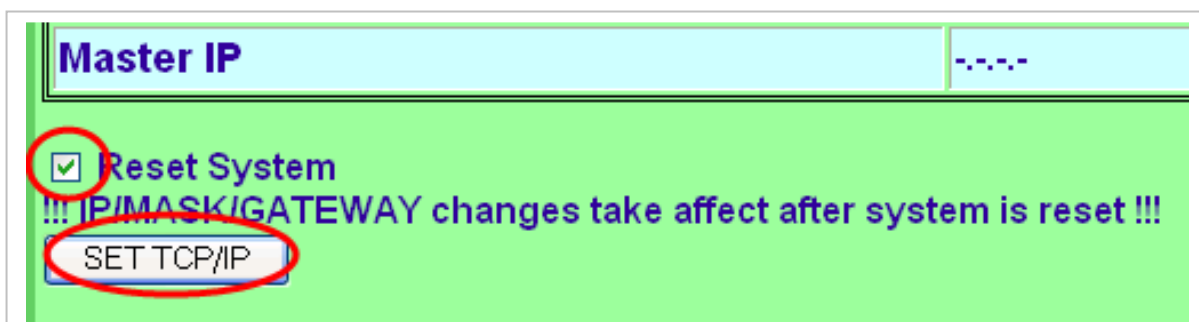
When the “config=RESET” Console/Telnet command is used to clear the EEPROM, the “Network WDT timeout” (SystemTimeout) setting will also be cleared to 0.

This setting must then be reconfigured using the “SystemTimeout” Console/Telnet command.

✚ Master IP: default = empty (disabled).

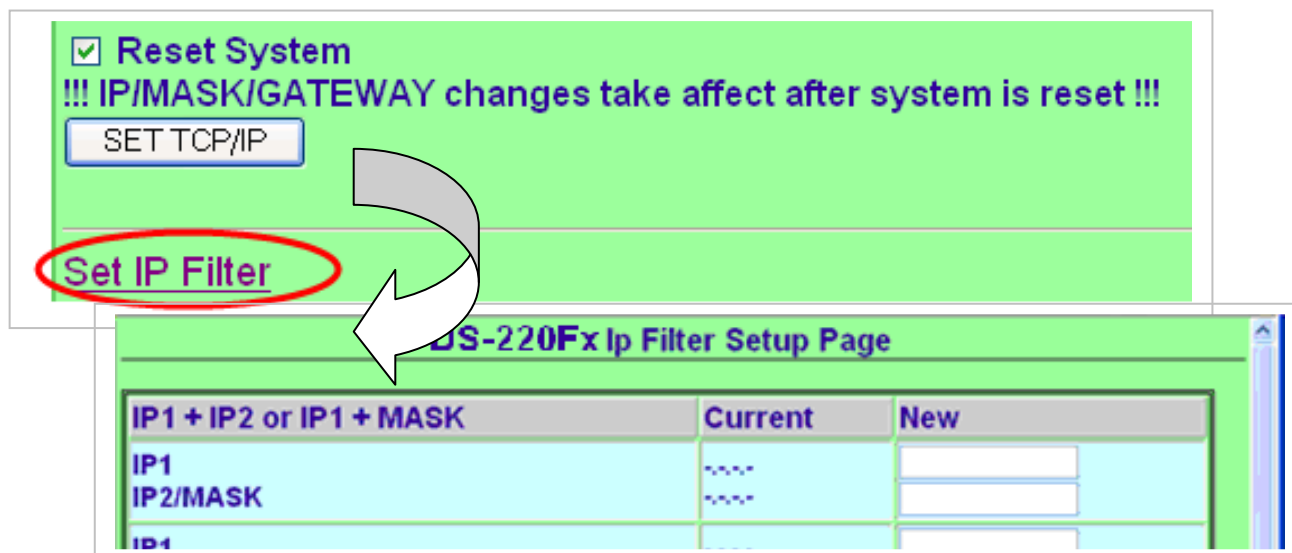
If the Master IP is set, only a client using the Master IP can change the COM port configuration, which prevents the COM port configuration from being changed by other clients.

After setting the new configuration, click the “**Set TCP/IP**” button to save it. If the “Reset System” option is checked, the PDS-220Fx module will reboot itself after the saving operation is complete, otherwise the original settings will still be valid until the module is next powered on.



5.3. IP Filter Setting

The IP filter setting limits which client PCs are able to link to the PDS-220Fx module via specific IP addresses. When one or more IP addresses are set in the filter table, only client PCs whose IP address is included in the range listed in the filter table will be able to connect to the PDS-220Fx module. Any requests from other PCs will be rejected



- ✦ **Set IP1 only:** only clients whose IP address is included in the filter table are able to connect to the PDS-220Fx module.
- ✦ **Set IP1 + IP2:** set a range of IP address as a starting and ending point. This setting allows clients whose IP address is included in the IP filter range to connect to the PDS-220Fx module.
- ✦ **Set IP1+Mask:** set the IP filter range as:
 $(IP1 \& Mask) + 0 \sim (IP1 \& Mask) + (\sim Mask)$.

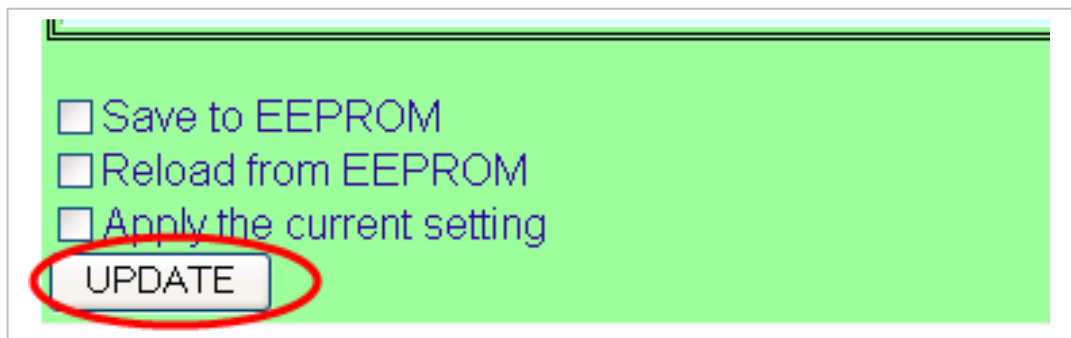
Only clients whose IP address is included in the IP filter range are able to connect to the PDS-220Fx module. For instance:

IP1 = 10.0.9.5, mask = 255.255.255.0

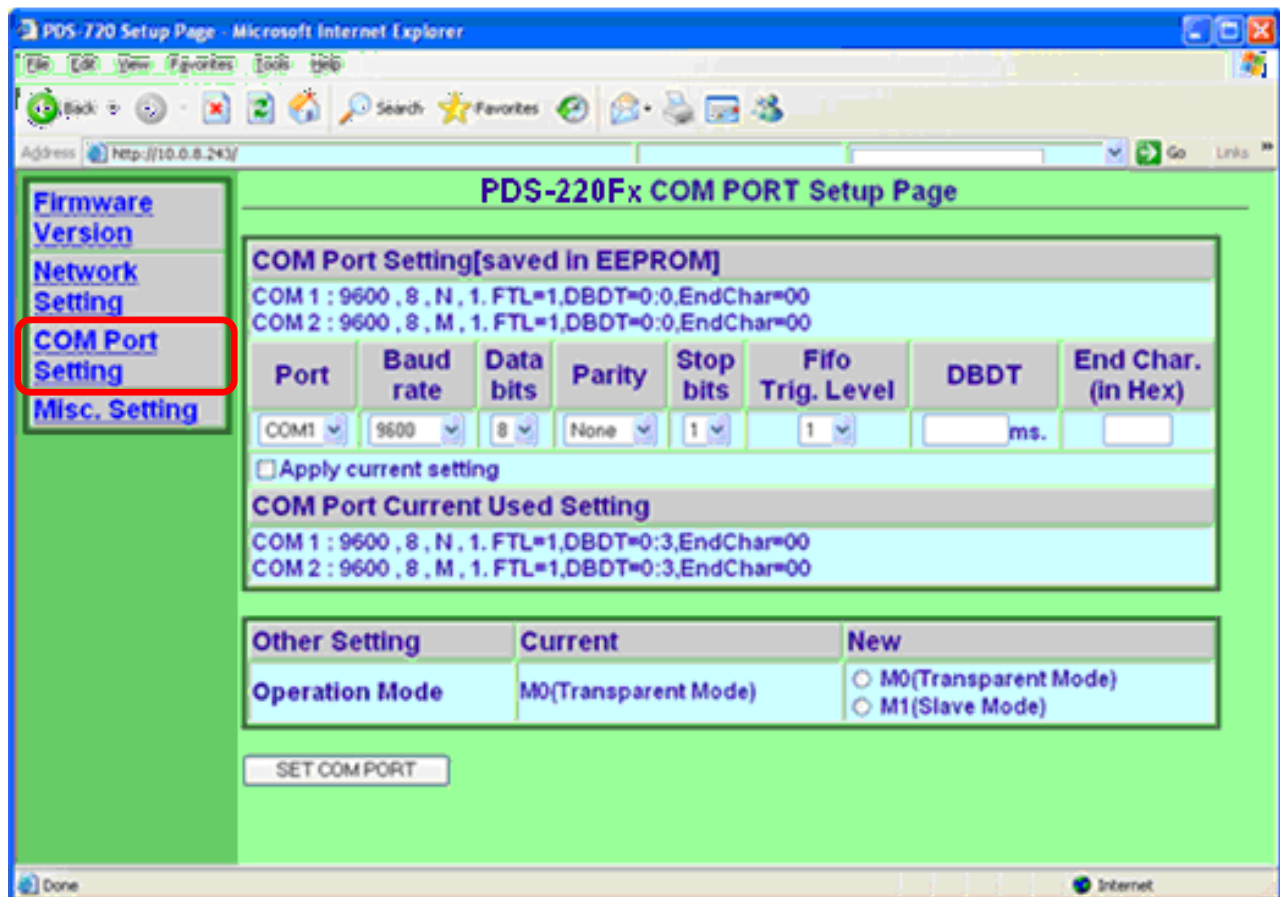
IP1 & MASK = 10.0.9.0, ~mask = 0.0.0.255

This allows clients whoes IP address is included in the range 10.0.9.0 ~ 10.0.9.255 to connect to the PDS-220Fx module.

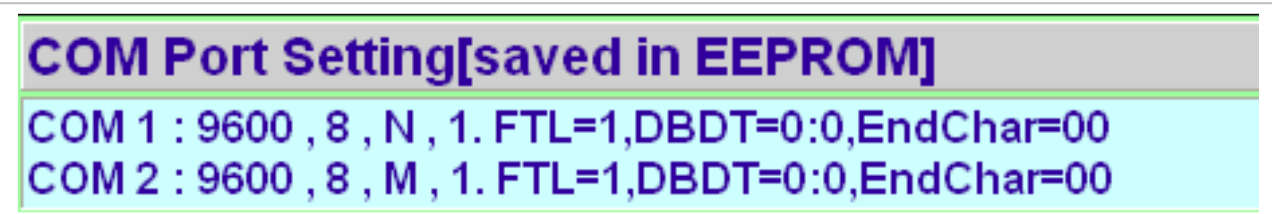
- Click the “**Update**” button to validate the settings.



5.4. COM Port Settings



- The COM port settings are saved in the EEPROM on the PDS-220Fx module.



✚ The Currently Used COM Port Settings List

COM Port Current Used Setting	
COM 1	: 9600 , 8 , N , 1. FTL=1,DBDT=0:3,EndChar=00
COM 2	: 9600 , 8 , M , 1. FTL=1,DBDT=0:3,EndChar=00

✚ The COM Port Settings Area

Port	Baud rate	Data bits	Parity	Stop bits	Fifo Trig. Level	DBDT	End Char. (in Hex)
COM1	9600	8	None	1	1	<input type="text"/> ms.	<input type="text"/>
<input type="checkbox"/> Apply current setting							

Note: If the “**Set COM Port**” button is clicked without checking the “**Apply current setting**”, the new settings will be saved to the EEPROM of the PDS-220Fx without changing the COM port and the new settings will only be valid after the module is next powered on.

If the “**Apply current setting**” checked when the “**Set COM Port**” button is clicked, the new settings will be valid immediately.

✚ **Port:** The COM port number on the PDS-220Fx module.

✚ **Baud Rate, Data Bits, Parity**

✚ **Stops Bits, End Character:**

The configuration settings should match the serial device used.

✚ **FIFO Trig. Level:** FIFO trigger level

This option sets the number of characters that the FIFO can store, and the PDS module will read the data once the amount of data in the FIFO reaches the limitation. If the amount of data transferred is large and uses a high transfer speed (such as 115200 bps), setting a smaller value is helpful in preventing data loss.

✚ **DBDT (ms):** Data Buffer Delay Timeout

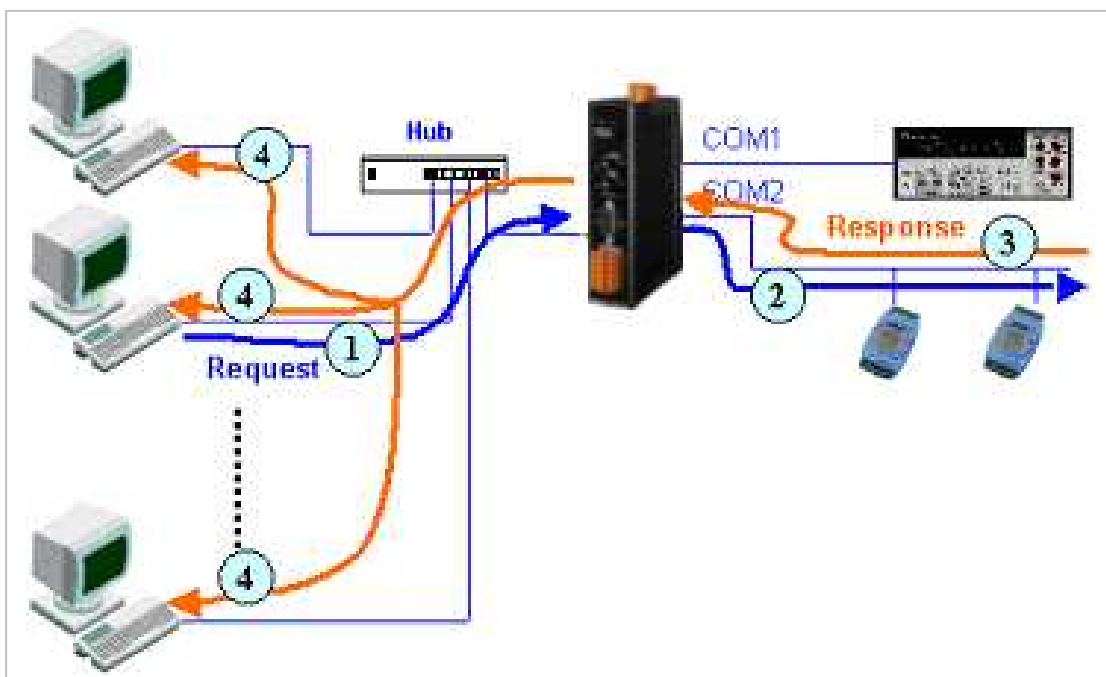
When the COM port does not receive data from devices connected for longer than the period defined in the DBDT setting, the PDS-220Fx will determine that the data transfer is complete and return to processing working tasks.

⚙️ **Other settings: M0 mode**

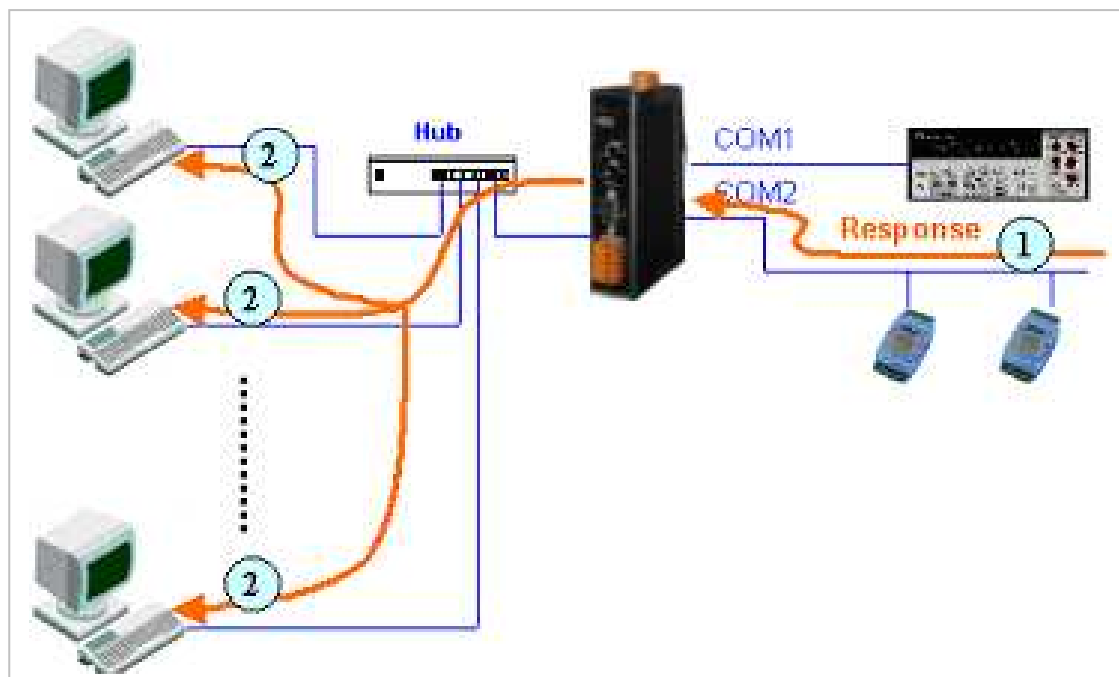
Other Setting	Current	New
Operation Mode	M0(Transparent Mode)	<input type="radio"/> M0(Transparent Mode) <input type="radio"/> M1(Slave Mode)

M0: Transparent Mode (Multi-echo mode)

Condition 1: One client sends a request to the PDS-220Fx module to access each device.
The PDS-220Fx module the echoes the data from each device to each connected client

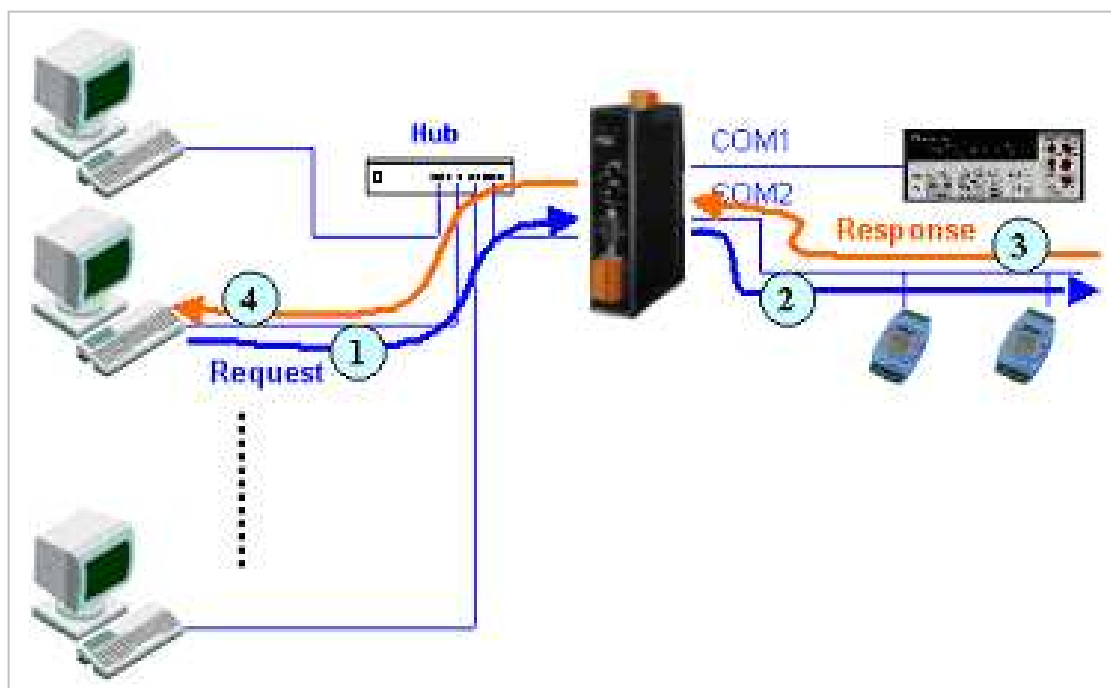


Condition 2: No clients send any requests to the PDS-220Fx module. The PDS-220Fx module echoes data from the devices to each connected client.

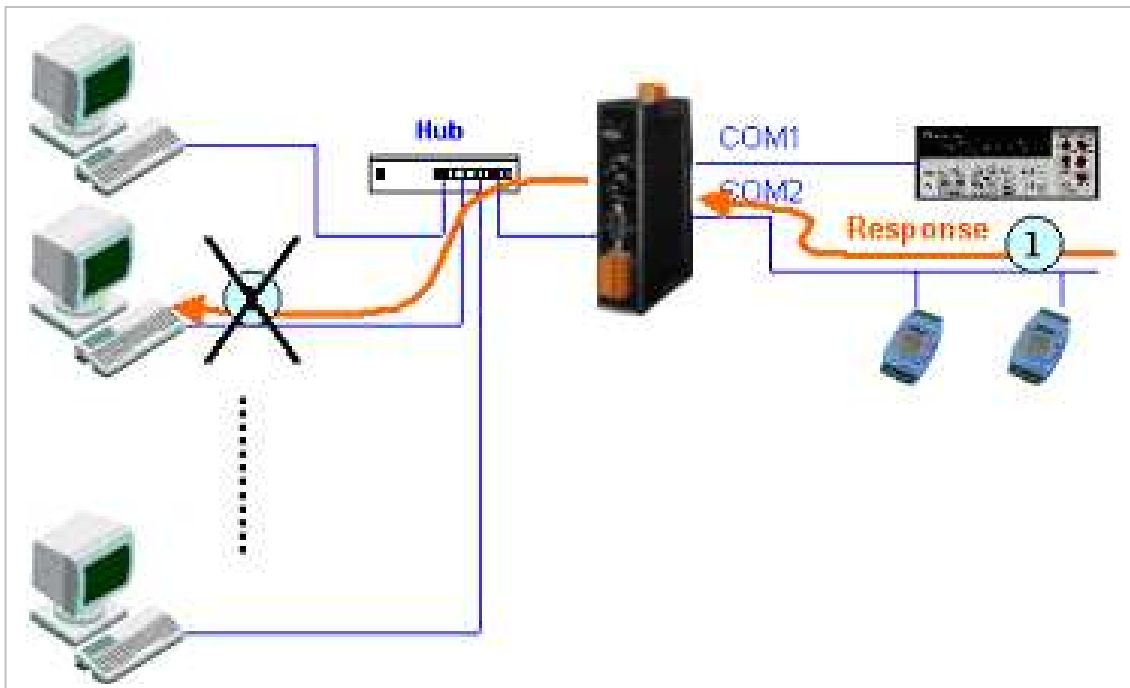


M1: Slave Mode (Single-echo mode)

Condition 1: One client sends a request to the PDS-220Fx module to access the other devices. The PDS-220Fx module echoes data from the devices to the client that requested the service.

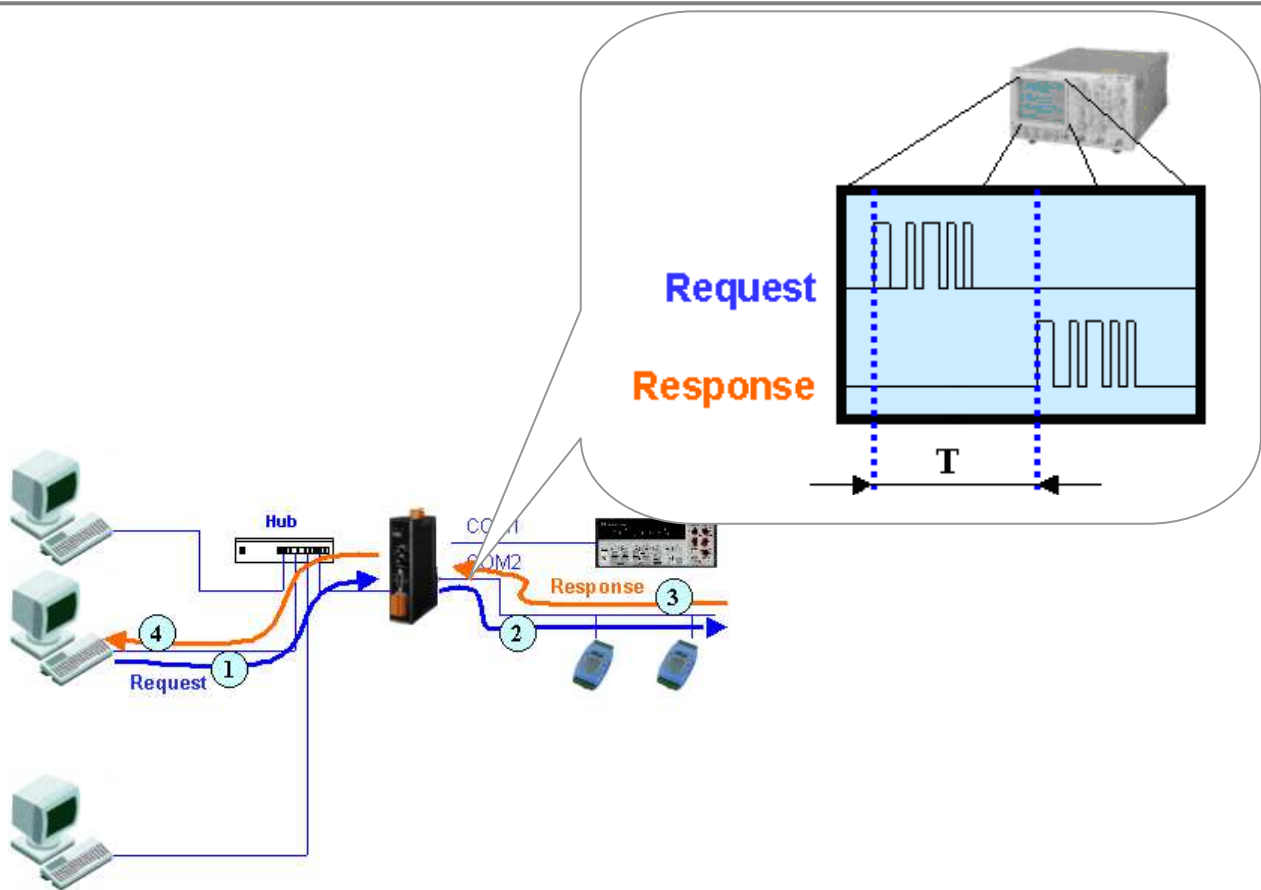


Condition 2: No clients send any requests to the PDS-220Fx module. The PDS-220Fx module doesn't echo any data from the devices to any client.

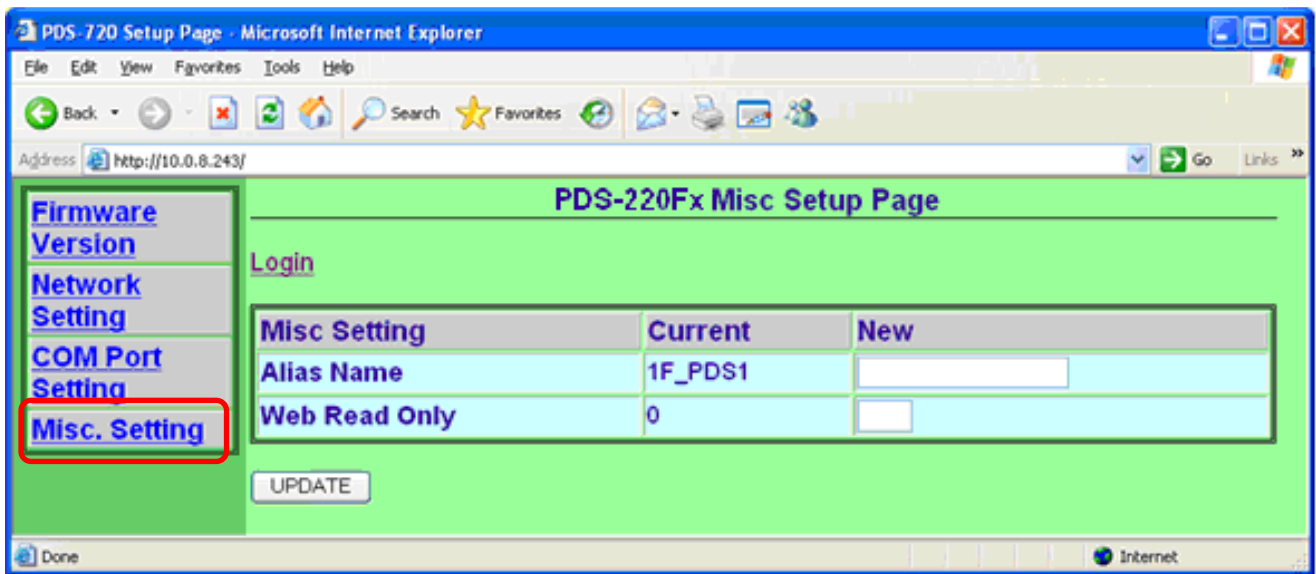


In M1, the slave mode timeout setting is used to set the waiting time after the last character of the request is sent to the device. If the device does not respond within the timeout period, the PDS-220Fx module will return a timeout error and process the next request.

Other Setting	Current	New
Operation Mode	M1(Slave Mode)	<input type="radio"/> M0(Transparent Mode) <input type="radio"/> M1(Slave Mode)
Slave Mode Timeout(ms)	100	<input type="text"/>



5.5. Miscellaneous settings



✚ **Alias Name:** allocates an alias to the PDS-220Fx module.

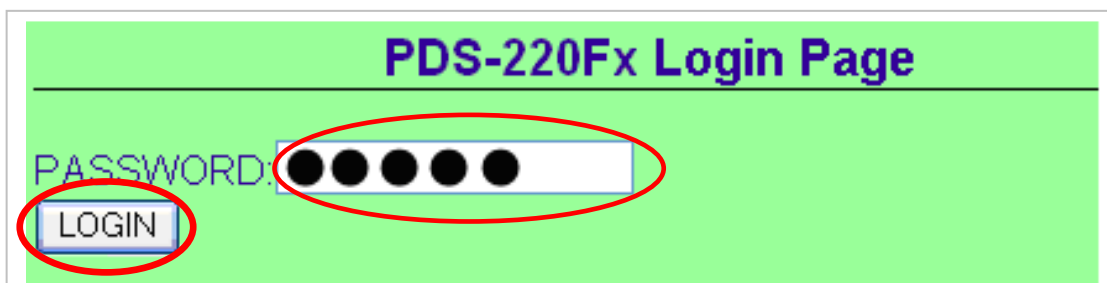
✚ **Web Read Only:** 0 = disabled, 1 = enabled



*If the “Web Read Only” property is set to 1, enabled, the web server will **not** be able to save any new configurations to the PDS module. To disable the “Web Read Only” property, refer to the information below.*

✚ **Login:** used to disable the “Web Read Only” property or to set a new password.

1. Enter the password (default is **admin**) and click the “**LOGIN**” button.



PDS-220Fx Misc Setup Page

[Logout](#)

Misc Setting	Current	New
Alias Name	PDS-1F	<input type="text"/>
Web Read Only	1	<input style="border: 2px solid red;" type="text" value="0"/>
Set New Password		<input type="text"/>
Confirm New Password		<input type="text"/>

UPDATE

2. Set the “**Web Read Only**” value to 0 and click the “**UPDATE**” button.
3. Check that the “**Web Read Only**” value is 0 and then click “**Logout**” to complete the operation.

PDS-220Fx Misc Setup Page

[Logout](#)

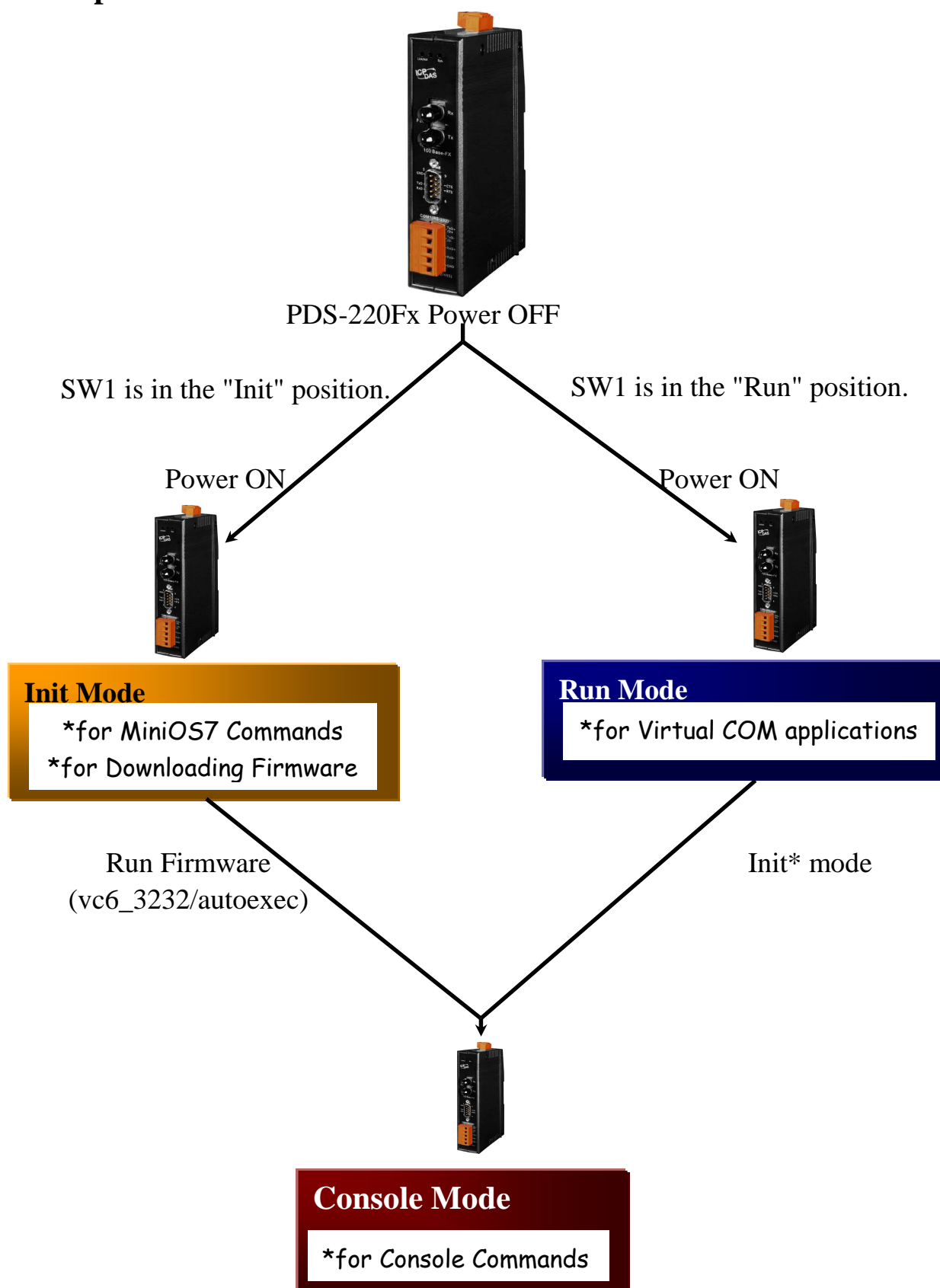
Misc Setting	Current	New
Alias Name	PDS-1F	<input type="text"/>
Web Read Only	0	<input type="text"/>
Set New Password		<input type="text"/>
Confirm New Password		<input type="text"/>

UPDATE

4. The User can restore the PDS-220Fx password to the default value “admin” by using the “config=RESET” console command (refer to the Console/Telnet Commands List section). This command restores most of the PDS-220Fx settings to the factory default values. The PDS-220Fx must be rebooted to load the new configuration (including the default password).

6. Console/Telnet Commands List

6.1.Operation Flowchart



6.2.Switching between Init/Normal Modes

PDS-220Fx



Normal/Run Mode



Init Mode

Comparison Table (Init/Run Modes)

Mode	Firmware	VCOM Commands	Telnet Commands	Console Commands
Init	<i>Stop</i>	<i>No</i>	<i>No</i>	<i>No</i>
	Init Mode is used to upgrade firmware and accepts MiniOS7 commands (from PDS.COM1) only.			
Run	<i>Running</i>	<i>Yes</i>	<i>Yes</i>	<i>No</i>
	Run Mode is used for Virtual COM applications, and accepts Virtual COM commands (TCP port 10000) and Telnet commands (TCP port 23).			
Console	<i>Running</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
	Console Mode is used to configure the Virtual COM. PDS.COM1 is the console port that accepts console commands while other ports are still working with Virtual COM applications.			

6.3. Command List

No.	Command	Description
1	<u>IPFILTER</u>	Retrieves/Sets the range of IP addresses that are allowed to access the PDS.
2	<u>IPCONF</u>	Queries the network configuration. (IP/Mask/Gateway/MAC addresses).
3	<u>SOCKET</u>	Lists the status of each socket (Listen/Not Used Yet) together with the type of each socket (TCP Server: Port No./UDP/Unused).
4	<u>COM</u>	Queries or sets the configuration of the COM ports (Baud Rate/Parity/Stop Bits).
5	<u>Broadcast</u>	Queries or sets the Broadcast parameter, which determines whether or not the module can receive Broadcast packets.
6	<u>SystemTimeout</u>	If there are no network communications during the SystemTimeout period, the PDS-220Fx will reboot itself automatically.
7	<u>SocketTimeout</u>	If there is no data sent/received on the connection during the SocketTimeout period, the PDS-220Fx will close the connection automatically.
8	<u>M</u>	Retrieves/Sets the echo mode. /M0: Transparent Mode, Multi-Echo, Data-Shared. /M1: Slave Mode, Single-Echo, Non-Shared.
9	<u>EchoCmdNo</u>	Queries or sets the EchoCmdNo parameter that enables or disables adding Command Number before a response.
10	<u>EndChar</u>	Sets a character that determines the end of a response string.
11	<u>IP</u>	Queries or sets the IP address.
12	<u>MASK</u>	Queries or sets the subnet Mask value.
13	<u>GATEWAY</u>	Queries or sets the Gateway address.
14	<u>MAC</u>	Queries the MAC address.
15	<u>NAME</u>	Queries the module name.
16	<u>ALIAS</u>	Sets the alias for a PDS-220Fx.
17	<u>DHCP</u>	Enables/Disables the DHCP client.
18	<u>UDP</u>	Sets whether to reply to a UDP search command.
19	<u>VER</u>	Queries the version information.
20	<u>SAVE</u>	Determines whether or not backup copies of the "autoexec.bat" and "vcom.ini" files are saved when using the "load" command.
21	<u>LOAD</u>	Loads a file to the built-in flash disk on the PDS-220Fx. This command should only be used to update the firmware only.
22	<u>CONFIG</u>	Restores the factory default settings.
23	<u>RESET</u>	Reboots the PDS-220Fx module.
24	<u>QUIT</u>	Exits the running firmware.

6.3.1. IPFILTER

Description: This command is used to query or edit IP the filter table. The IP filter table restricts the access of packets based on the IP header. If one or more IP addresses are saved into the IP filter table, only clients whose IP is specified in the IP filter table can access the PDS-220Fx.

Effect: Immediate

Command	Arguments	Description
ipfilter		Queries the IP filter table.
ipfilter	ADD ip1 ADD ip1 ip2	Adds an IP address to the IP filter table. Adds a range of IP addresses (ip1 ~ ip2) to the IP filter table.
ipfilter	DEL ip1 DEL ip1 ip2	Deletes an IP address (ip1) from the IP filter table. Deletes a range of IP addresses (ip1 ~ ip2) from the IP filter table. Note: The IP address that follows the DEL command should already be listed in the IP filter table.
ipfilter	DEL #n	Deletes item “n” from the IP filter table.
ipfilter	DEL @	Deletes all items from the IP filter table.
ipfilter	SAVE	Saves the IP filter table to the EEPROM. If the IP filter table is empty, the data currently stored in the EEPROM will be cleared.
ipfilter	LOAD	Loads the IP filter table from the EEPROM.

- ※ The IP filter table is loaded automatically when the PDS-220Fx is booted.
- ※ Use the “ipfilter save” command to save a new IP filter table to the EEPROM.

Example:

```
7188X W 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...  
Ucom3230>ipfilter  
IP filter #0:ip=10.0.8.20  
  
Ucom3230>ipfilter add 10.0.8.25  
IP filter #0:ip=10.0.8.20  
IP filter #1:ip=10.0.8.25  
  
Ucom3230>ipfilter add 10.0.8.30 10.0.8.40  
IP filter #0:ip=10.0.8.20  
IP filter #1:ip=10.0.8.25  
IP filter #2:ip range=10.0.8.30 ~ 10.0.8.40  
  
Ucom3230>ipfilter del 10.0.8.30 10.0.8.40  
IP filter #0:ip=10.0.8.20  
IP filter #1:ip=10.0.8.25  
  
Ucom3230>ipfilter del #0  
IP filter #0:ip=10.0.8.25  
  
Ucom3230>ipfilter del @  
No IP Filter!  
  
Ucom3230>ipfilter save  
[Save 0 IP Filter!]  
IP Filter setting is Cleared  
  
Ucom3230>ipfilter load  
Load 0 IpFilter setting  
No IP Filter!
```

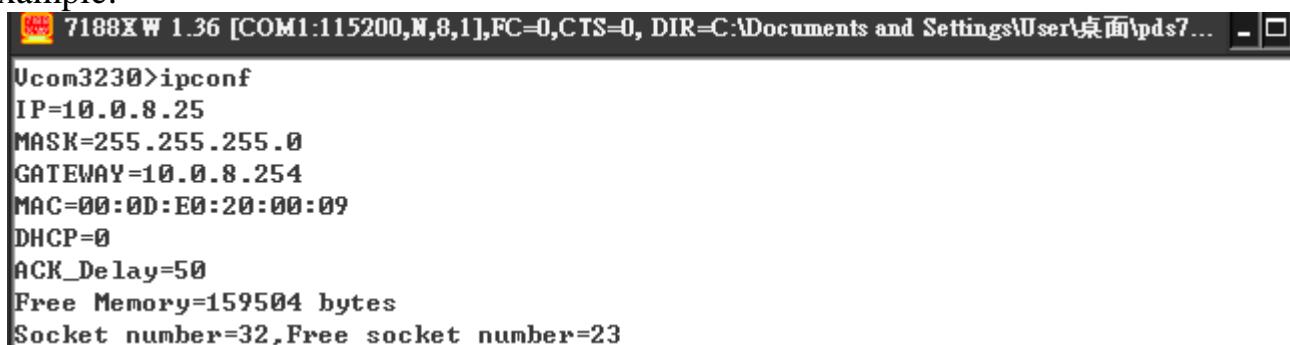
6.3.2 IPCONF

Description: This command is used to display the network configuration information, such as the IP/Mask/Gateway/MAC addresses, and the status of the DHCP/ACK_Delay/Free Memory/Socket.

Effect: Immediate

Command	Argument	Description
ipconf		Queries the network configuration.

Example:



```
7188X W 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...  
Ucom3230>ipconf  
IP=10.0.8.25  
MASK=255.255.255.0  
GATEWAY=10.0.8.254  
MAC=00:0D:E0:20:00:09  
DHCP=0  
ACK_Delay=50  
Free Memory=159504 bytes  
Socket number=32,Free socket number=23
```

6.3.3 SOCKET

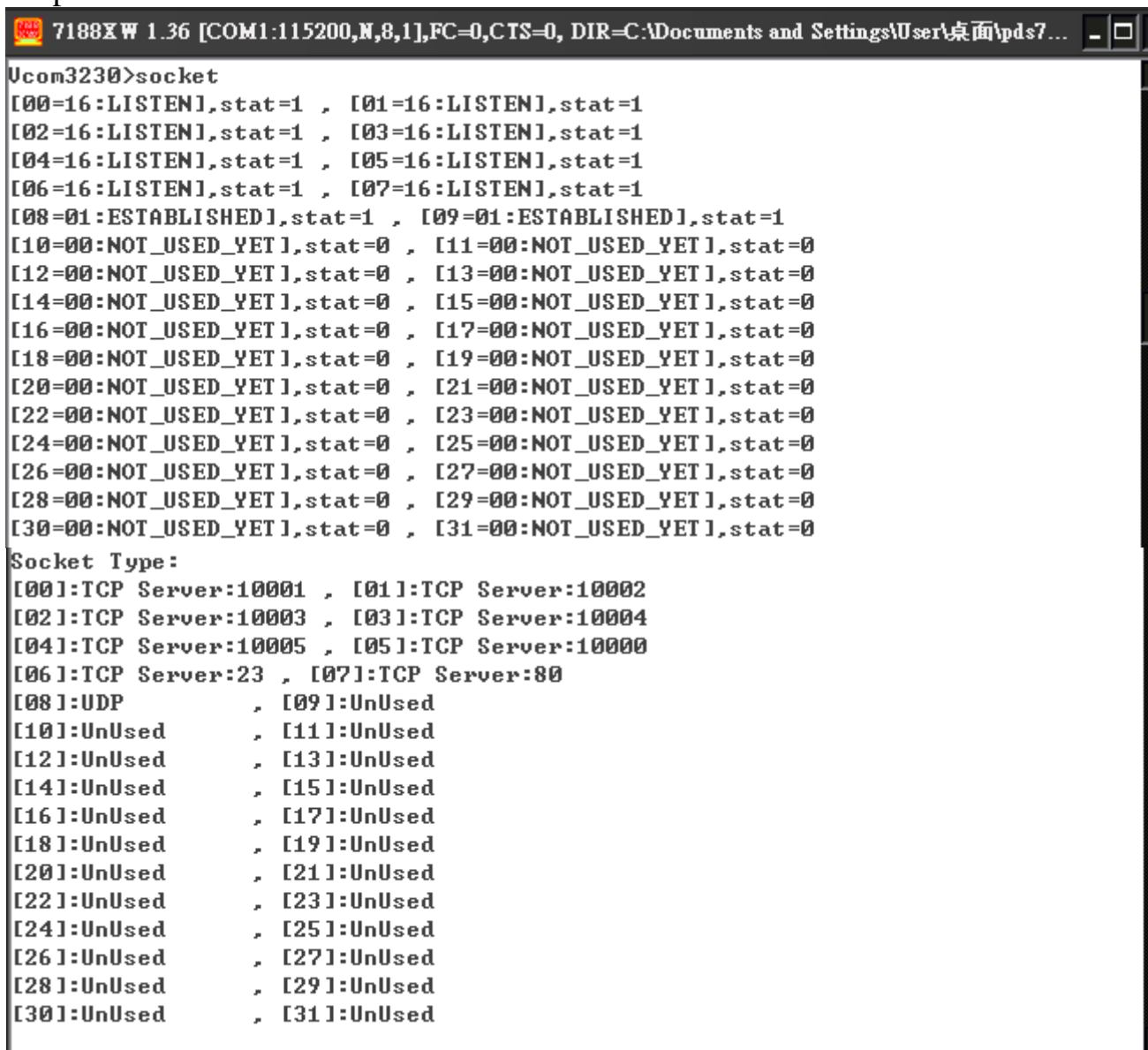
Description: This command lists the status of all sockets (Listen/Not Used Yet) together with the type of each socket (TCP Server: Port No./UDP/Unused)

If stat = 1, the socket is used. If stat = 0, the socket is not yet used.

Take Effect: Immediately

Command	Argument	Description
socket		Lists the status of all sockets.

Example:



```
7188XW 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...
Ucom3230>socket
[00=16:LISTEN],stat=1 , [01=16:LISTEN],stat=1
[02=16:LISTEN],stat=1 , [03=16:LISTEN],stat=1
[04=16:LISTEN],stat=1 , [05=16:LISTEN],stat=1
[06=16:LISTEN],stat=1 , [07=16:LISTEN],stat=1
[08=01:ESTABLISHED],stat=1 , [09=01:ESTABLISHED],stat=1
[10=00:NOT_USED_YET],stat=0 , [11=00:NOT_USED_YET],stat=0
[12=00:NOT_USED_YET],stat=0 , [13=00:NOT_USED_YET],stat=0
[14=00:NOT_USED_YET],stat=0 , [15=00:NOT_USED_YET],stat=0
[16=00:NOT_USED_YET],stat=0 , [17=00:NOT_USED_YET],stat=0
[18=00:NOT_USED_YET],stat=0 , [19=00:NOT_USED_YET],stat=0
[20=00:NOT_USED_YET],stat=0 , [21=00:NOT_USED_YET],stat=0
[22=00:NOT_USED_YET],stat=0 , [23=00:NOT_USED_YET],stat=0
[24=00:NOT_USED_YET],stat=0 , [25=00:NOT_USED_YET],stat=0
[26=00:NOT_USED_YET],stat=0 , [27=00:NOT_USED_YET],stat=0
[28=00:NOT_USED_YET],stat=0 , [29=00:NOT_USED_YET],stat=0
[30=00:NOT_USED_YET],stat=0 , [31=00:NOT_USED_YET],stat=0
Socket Type:
[00]:TCP Server:10001 , [01]:TCP Server:10002
[02]:TCP Server:10003 , [03]:TCP Server:10004
[04]:TCP Server:10005 , [05]:TCP Server:10000
[06]:TCP Server:23 , [07]:TCP Server:80
[08]:UDP , [09]:UnUsed
[10]:UnUsed , [11]:UnUsed
[12]:UnUsed , [13]:UnUsed
[14]:UnUsed , [15]:UnUsed
[16]:UnUsed , [17]:UnUsed
[18]:UnUsed , [19]:UnUsed
[20]:UnUsed , [21]:UnUsed
[22]:UnUsed , [23]:UnUsed
[24]:UnUsed , [25]:UnUsed
[26]:UnUsed , [27]:UnUsed
[28]:UnUsed , [29]:UnUsed
[30]:UnUsed , [31]:UnUsed
```

6.3.4. COM

Description: This command queries or sets the configuration of the COM ports (Baud rate/Parity/Stop bits).

Effect: Immediate

Command	Arguments	Description
com		Queries the configuration of all COM ports.
com	n	Queries configuration of COM port “n”. If n = 0, the configuration of all COM ports will be listed in the same manner as when using the “com” command above.
com	N = BaudRate, DataBits, Parity, StopBit(s)	Sets the configuration of COM port “n”. If n = 0, the settings will be valid for all COM ports on the PDS-220Fx.

Example:



```
7188X W 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...
Ucom3230>com
COM 1=9600,8,N,1. connect=0
COM 2=9600,8,N,1. connect=0
Ucom3230>com 1=9600,8,E,1
COM 1=9600,8,E,1. connect=0
Ucom3230>com 0=9600,8,E,1
COM 1=9600,8,E,1. connect=0
COM 2=9600,8,E,1. connect=0
```

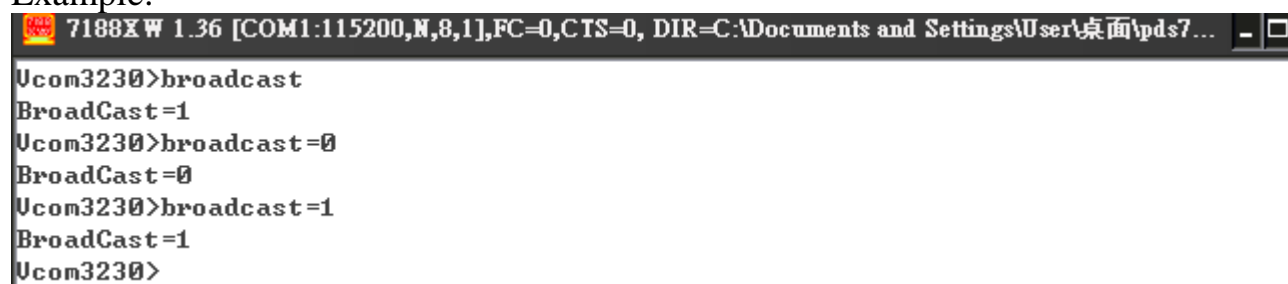
6.3.5. Broadcast

Description: This command is used to Enable/Disable listening broadcast packets on the PDS-220Fx.

Effect: Immediate

Command	Arguments	Description
Broadcast		Queries the Broadcast settings.
Broadcast	= 1	Sets Broadcast to 1. The system is able to receive broadcast packets.
Broadcast	= 0	Sets Broadcast to 0. The system will ignore broadcast packets.

Example:



```
7188X W 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...  
Ucom3230>broadcast  
BroadCast=1  
Ucom3230>broadcast=0  
BroadCast=0  
Ucom3230>broadcast=1  
BroadCast=1  
Ucom3230>
```

6.3.6. SystemTimeout (ms)

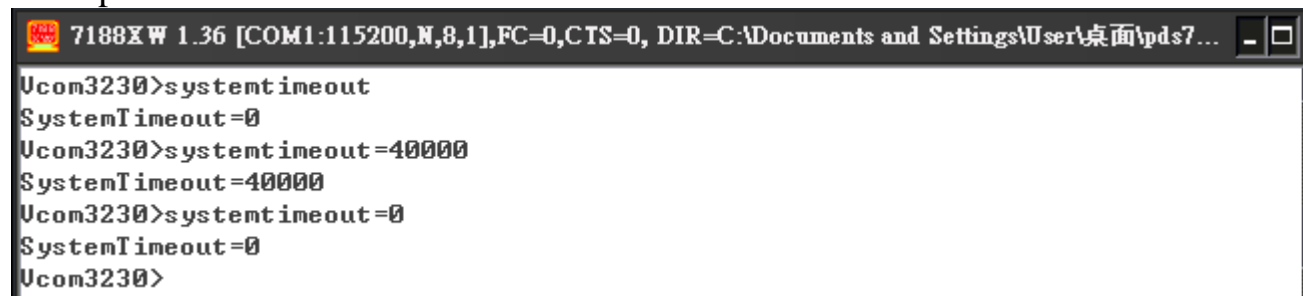
Description: This command queries or sets the system timeout value.

If the SystemTimeout value is greater than zero, and the PDS-220Fx does not receive any packets from any client within the SystemTimeout period, the PDS-220Fx will reboot itself.

Effect: Immediate

Command	Arguments	Description
SystemTimeout		Queries the SystemTimeout settings.
SystemTimeout	= nnnnn	Sets the SystemTimeout. (Unit : ms) The default factory setting is 300000 ms (= 300 seconds = 5 minutes), and the min. value is 30000 ms (= 30 seconds)

Example:



```
7188X W 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...
Ucom3230>systemtimeout
SystemTimeout=0
Ucom3230>systemtimeout=400000
SystemTimeout=400000
Ucom3230>systemtimeout=0
SystemTimeout=0
Ucom3230>
```

6.3.7. SocketTimeout (ms)

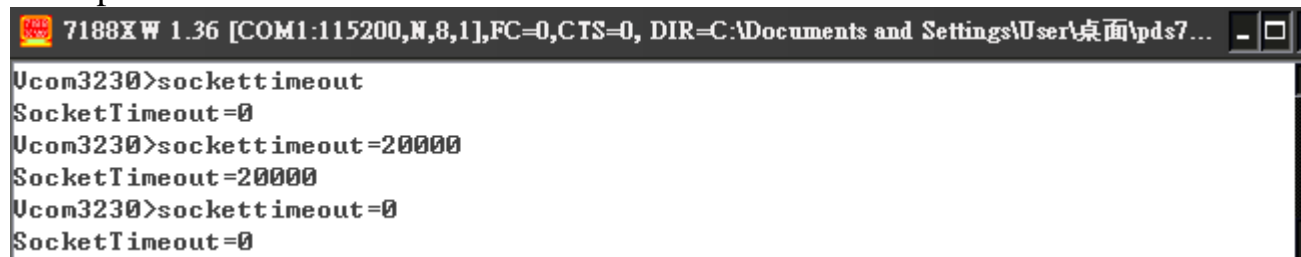
Description: This command is used to query or set the SocketTimeout parameter.

If the SocketTimeout value is greater than zero, and the PDS-220Fx does not receive any data from a client PC within the SocketTimeout period, the PDS-220Fx will close the socket connection between itself and the client PC.

Effect: Immediate

Command	Arguments	Description
SocketTimeout		Queries the SocketTimeout settings.
SocketTimeout	= nnnnn	Sets the SocketTimeout. (Unit : ms) default = 0 (disabled), min = 10000

Example:



```
7188XW 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...
Ucom3230>sockettimeout
SocketTimeout=0
Ucom3230>sockettimeout=200000
SocketTimeout=200000
Ucom3230>sockettimeout=0
SocketTimeout=0
```

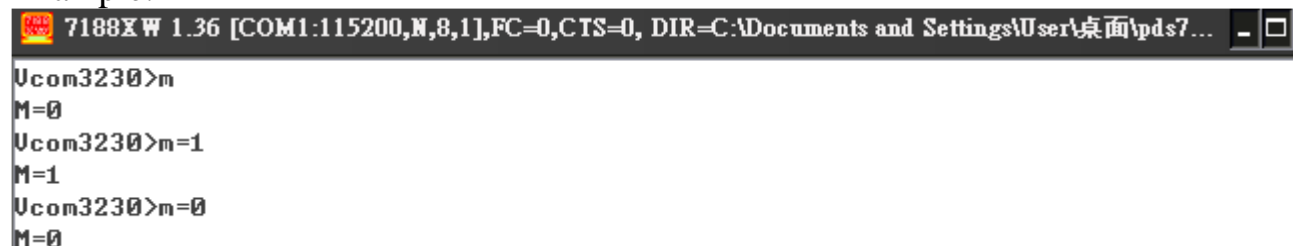
6.3.8. M

Description: This command is used to query or set the echo mode.

Effect: Immediate

Command	Arguments	Description
M		Queries the echo mode settings.
M	= 0	Sets the multi-echo mode to enable. When set to multi-echo mode, the PDS-220Fx echoes data from a device to all clients that are connected.
M	= 1	Sets the single-echo mode to enable. When set to single-echo mode, the PDS-220Fx echoes data from a device to the client that requested the service.

Example:



```
7188X W 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...
Ucom3230>m
M=0
Ucom3230>m=1
M=1
Ucom3230>m=0
M=0
```

6.3.9. EchoCmdNo

Description: This command is used to query or set the EchoCmdNo parameter.

The EchoCmdNo parameter is used to set whether the PDS-220Fx prefixes the Virtual COM command to the corresponding response. (Virtual COM commands are used to configure a PDS-220Fx through TCP port 10000)

Effect: Immediate

Command	Arguments	Description
EchoCmdNo		Queries the EchoCmdNo settings.
EchoCmdNo	= 0	If EchoCmdNo = 0, a Virtual COM command number will not be prefixed to the corresponding response.
EchoCmdNo	= 1	If EchoCmdNo = 1, a Virtual COM command number will be prefixed to the corresponding response.

Example:

```
7188XW 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...
Ucom3230>echocmdno
EchoCmdNo=0
Ucom3230>echocmdno=1
EchoCmdNo=1
Ucom3230>echocmdno=0
EchoCmdNo=0
```

EchoCmdNo = 0

Send Command	
Send	13
Response	10.0.8.254

EchoCmdNo = 1

Send Command	
Send	13
Response	1310.0.8.254

6.3.10. EndChar

Description: This command is used to query or set the EndChar parameter.

PDS-220Fx sends a data string from the serial port to the TCP client immediately after it receives a char in the data string that matches the EndChar value set by this command.

Set EndChar = 00 to disable the EndChar feature.

Effect: Immediate

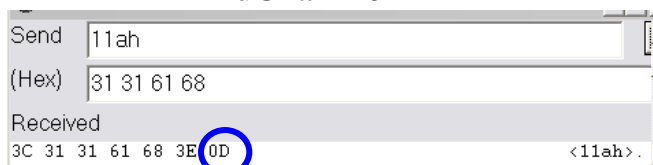
Command	Arguments	Description
Endchar		Queries the EndChar setting.
Endchar	= HH	Sets the EndChar character.

Example:

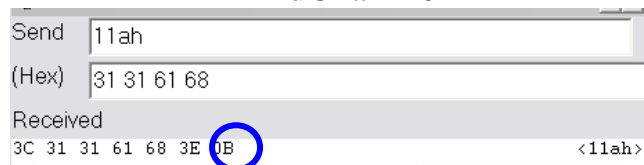


```
7188XW 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...
Ucom3230>endchar
EndChar=0D
Ucom3230>endchar=0B
EndChar=0B
```

EndChar = 0D



EndChar = 0B



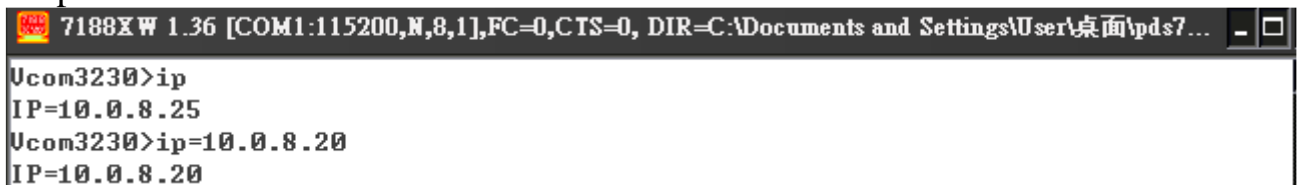
6.3.11. IP

Description: This command is used to query or set the IP address.

Effect: After the next reboot.

Command	Arguments	Description
IP		Queries the IP address.
IP	= xxx.xxx.xxx.xxx	Sets the IP address.

Example:



```
7188XW 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...
Ucom3230>ip
IP=10.0.8.25
Ucom3230>ip=10.0.8.20
IP=10.0.8.20
```

6.3.12. MASK

Description: This command is used to query or set the subnet Mask value.

Effect: After the next reboot.

Command	Arguments	Description
mask		Queries the subnet Mask value.
mask	= xxx.xxx.xxx.xxx	Sets the subnet Mask value.

Example:



```
7188XW 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...
Ucom3230>mask
MASK=255.255.255.0
Ucom3230>mask=255.255.255.254
MASK=255.255.255.254
```

6.3.13. GATEWAY

Description: This command is used to query or set the outgoing subnet Gateway address.

Effect: After the next reboot.

Command	Arguments	Description
Gateway		Queries the Gateway address.
Gateway	= xxx.xxx.xxx.xxx	Sets the Gateway address

Example:



```
7188X W 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...
Ucom3230>gateway
GATEWAY=10.0.8.254
Ucom3230>gateway=10.0.8.255
GATEWAY=10.0.8.255
```

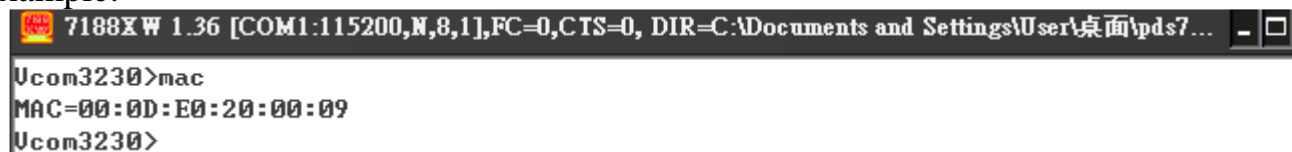
6.3.14. MAC

Description: This command is used to query the MAC address.

Effect: Setting the address is not allowed.

Command	Arguments	Description
Mac		Queries the MAC address.(Setting the address is not allowed)

Example:



```
7188X W 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...
Ucom3230>mac
MAC=00:0D:E0:20:00:09
Ucom3230>
```

6.3.15. NAME

Description: This command is used to query the name of a PDS-220Fx module.

Effect: Setting the name is not allowed.

Command	Arguments	Description
name		Queries the name of a PDS-220Fx module.

Example:



```
7188XW 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...
Ucom3230>name
NAME=PDS-752
Ucom3230>
```

6.3.16. ALIAS

Description: This command is used to query or set the alias of a PDS-220Fx module.
The maximum character length of the alias name is 16 bytes.

Effect: Immediate

Command	Arguments	Description
alias		Queries the alias.
alias	= xxxx	Sets the alias of a PDS-220Fx module to “xxxx”.

Example:



```
7188XW 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...
Ucom3230>alias
ALIAS=
Ucom3230>alias=p752
ALIAS=p752
```

6.3.17. DHCP

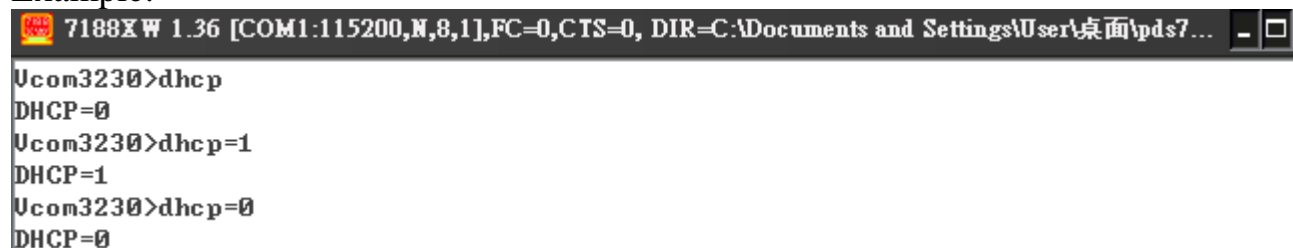
Description: This command is used to set the DHCP client to either enabled or disabled.

The DHCP function will automatically retrieve a dynamic IP address setting for the PDS-220Fx. Thus it is recommended that the DHCP function is disabled and a static IP address setting is used. This prevents having to continually reconfigure virtual COM mappings again and again.

Effect: Immediate

Command	Arguments	Description
DHCP	= 0	Disables the DHCP client.
DHCP	= 1	Enables the DHCP client.

Example:

A screenshot of a terminal window with a dark background. The title bar shows a red icon, the text "7188X W 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...", and standard window controls. The terminal content shows three commands and their outputs: "Ucom3230>dhcp" followed by "DHCP=0", "Ucom3230>dhcp=1" followed by "DHCP=1", and "Ucom3230>dhcp=0" followed by "DHCP=0".

```
Ucom3230>dhcp
DHCP=0
Ucom3230>dhcp=1
DHCP=1
Ucom3230>dhcp=0
DHCP=0
```

6.3.18. UDP

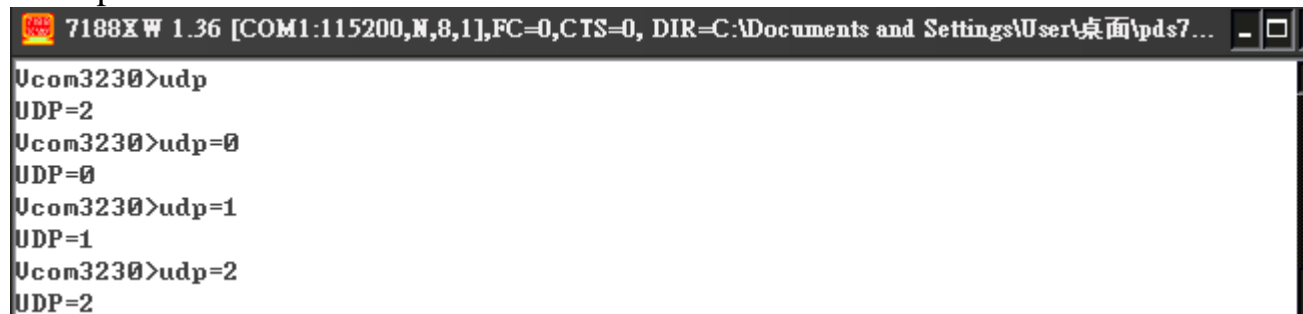
Description: This command is used to configure the UDP Search function.

UDP is used to set the action mode for when a PDS-220Fx module receives a UDP search command.

Effect: Immediate

Command	Arguments	Description
UDP	= 0	Rejects UDP search commands. The PDS-220Fx will not reply to any UDP search commands, and cannot be searched again.
UDP	= 1	Replies to UDP search commands. The PDS-220Fx modules will reply to any UDP search commands, and can be searched.
UDP	= 2 (Default)	Replies to an UDP search commands until a client is connected.

Example:



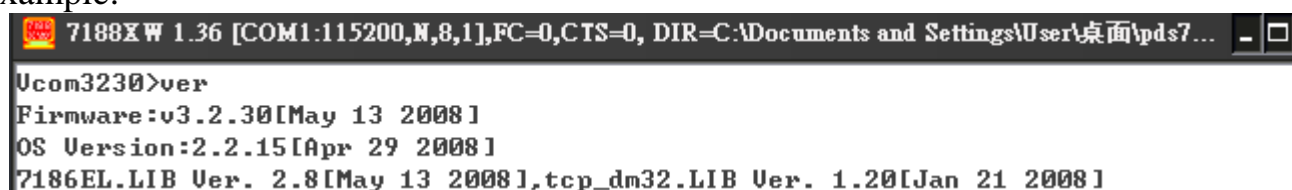
```
7188X W 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...
Vcom3230>udp
UDP=2
Vcom3230>udp=0
UDP=0
Vcom3230>udp=1
UDP=1
Vcom3230>udp=2
UDP=2
```

6.3.19. VER

Description: This command is used to query the version information for a PDS-220Fx module.

Command	Argument	Description
VER		Queries the version information.

Example:



```
7188XW 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...
Ucom3230>ver
Firmware:v3.2.30[May 13 2008]
OS Version:2.2.15[Apr 29 2008]
7186EL.LIB Ver. 2.8[May 13 2008],tcp_dm32.LIB Ver. 1.20[Jan 21 2008]
```

6.3.20. SAVE

Description: This command is used to set the PDS-220Fx module to either back up or not back up “autoexec.bat” and “vcom.ini” files when using the “load” command.

Effect: Immediate

Command	Arguments	Description
save	= 1	When the “load” command is used, backup copies of the "autoexec.bat" and "vcom.ini" files will be saved.
save	= 0 (Default)	When the “load” command is used, backup copies of the "autoexec.bat" and "vcom.ini" files will NOT be saved.

Example: see images [21-1] and [21-2] below.

6.3.21. LOAD

Description: This command is used to load files to the built-in flash disk on the PDS-220Fx module. It should only be used to update the firmware.

Effect: Immediate

Command	Argument	Description
load		This command is coordinated with the MiniOS7 “load” command and can be used to update “vcom3230.exe,” “vcom.ini” or “autoexec.bat” file(s).

※”Load” is not a Telnet command.

Example:

[21-1]

```
7188XW 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...
uPAC-7186EX_UDP>dir

 0>vc6_3230.exe 05/13/2008 11:16:07 83039[1445F18002:0000-9447:000F
 1>autoexec.bat 03/04/2008 11:26:02 18[0001219449:000F-944B:0001
Total File number is 2 Free space=375599 bytes
uPAC-7186EX_UDP>autoexec.bat

Ucom3230>save=0
Backup .ini file=0

Ucom3230>load
Press ALT_E to download file!
Input filename:vc6_3230.exe
Load file:vc6_3230.exe[crc=6927,0000]
Send file info. total 325 blocks
Block 325
Transfer time is: 10.765000 seconds
Ucom3230>quit

uPAC-7186EX_UDP>dir

 0>vc6_3230.exe 05/13/2008 11:16:07 83039[1445F18002:0000-9447:000F
 1>autoexec.bat 03/04/2008 11:26:02 18[0001219449:000F-944B:0001
 2>vc6_3230.exe 05/13/2008 11:16:07 83039[1445F1944D:0001-A893:0000
Total File number is 3 Free space=292528 bytes
uPAC-7186EX_UDP>
```

※When save = 0, the system doesn't back up the "autoexec.bat" and "vcom.ini" files to memory, and doesn't clear the flash disk. It only loads the specified file.

[21-2]

```

7188XW 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...
uPAC-7186EX_UDP>dir

 0>vc6_3230.exe 05/13/2008 11:16:07 83039[1445F]8002:0000-9447:000F
 1>autoexec.bat 03/04/2008 11:26:02 18[00012]9449:000F-944B:0001
Total File number is 2 Free space=375599 bytes
uPAC-7186EX_UDP>autoexec.bat

Ucom3230>save=1
Backup .ini file=1

Ucom3230>load
save file:autoexec.bat
Press ALT_E to download file!
Input filename:vc6_3230.exe
Load file:vc6_3230.exe[crc=6927,0000]
Send file info. total 325 blocks
Block 325
Transfer time is: 10.765000 seconds

Ucom3230>quit
Command not supported !

uPAC-7186EX_UDP>dir

 0>autoexec.bat 03/04/2008 11:26:02 18[00012]8002:0000-8003:0002
 1>vc6_3230.exe 05/13/2008 11:16:07 83039[1445F]8005:0002-944B:0001
Total File number is 2 Free space=375599 bytes
uPAC-7186EX_UDP>

```

Save=1

Load vc6_3230.exe

※ When save = 1, the system will first back up the "autoexec.bat" and "vcom.ini" files to memory, clear all files from the flash disk, before loading the "autoexec.bat" and "vcom.ini" files from memory and running the "load" command to load the specified file(s).

6.3.22. CONFIG

Description: This command is used to clear the settings currently stored in the EEPROM.

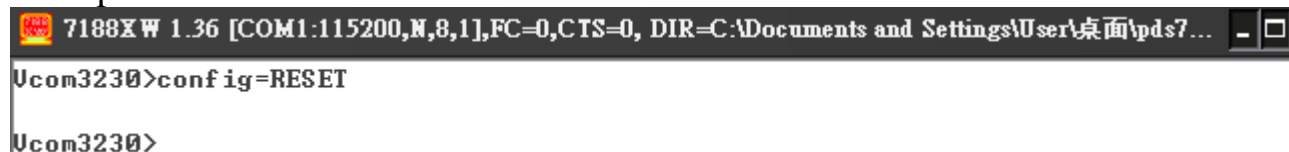
Effect: Immediate

Command	Argument	Description
config	= RESET	<p>Clears the settings currently stored in the EEPROM.</p> <p>After rebooting, the firmware will use the new (default) settings stored in the EEPROM.</p> <p>Note: (the "RESET" command MUST be entered in capital letters.)</p>

※When the “Config=RESET” command is used, the Password, Alias and IPFILTER settings will also be cleared, but the IP/MASK/GATEWAY addresses will not.

※The SystemTimeout setting is also cleared to 0 by the "config=RESET" command, so you will have to configure the SystemTimeout value again. The default factory setting of SystemTimeout value is 300000ms (= 300 seconds).

Example:



```
7188X W 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...  
Ucom3230>config=RESET  
Ucom3230>
```

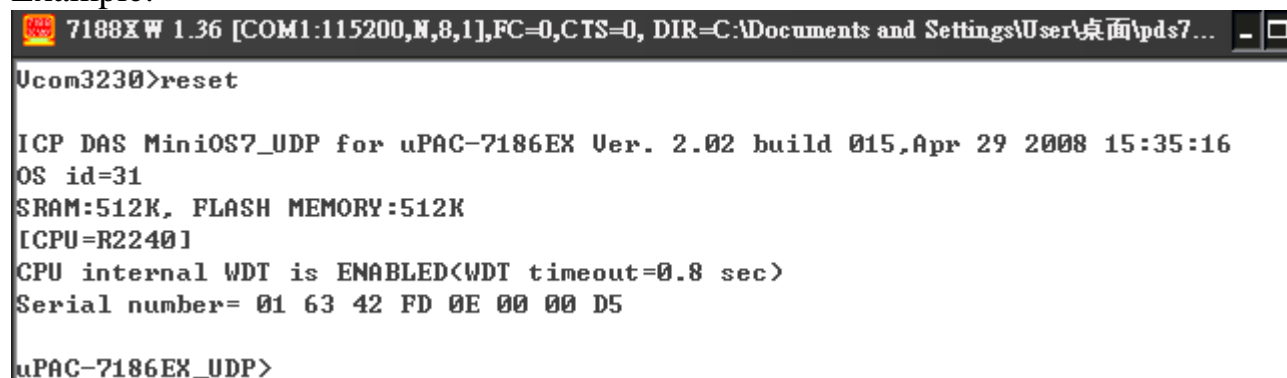
6.3.23. RESET

Description: This command is used to reboot the PDS-220Fx module.

Effect: Immediate

Command	Argument	Description
reset		Reboots the PDS-220Fx module.

Example:



```
7188XW 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...
Ucom3230>reset

ICP DAS MinIOS7_UDP for uPAC-7186EX Ver. 2.02 build 015, Apr 29 2008 15:35:16
OS id=31
SRAM:512K, FLASH MEMORY:512K
[CPU=R2240]
CPU internal WDT is ENABLED(WDT timeout=0.8 sec)
Serial number= 01 63 42 FD 0E 00 00 D5
uPAC-7186EX_UDP>
```

6.3.24. QUIT

Description: This command is used to quit the firmware of PDS-220Fx module.

Effect: Immediate

Command	Argument	Description
quit		Quits the firmware.

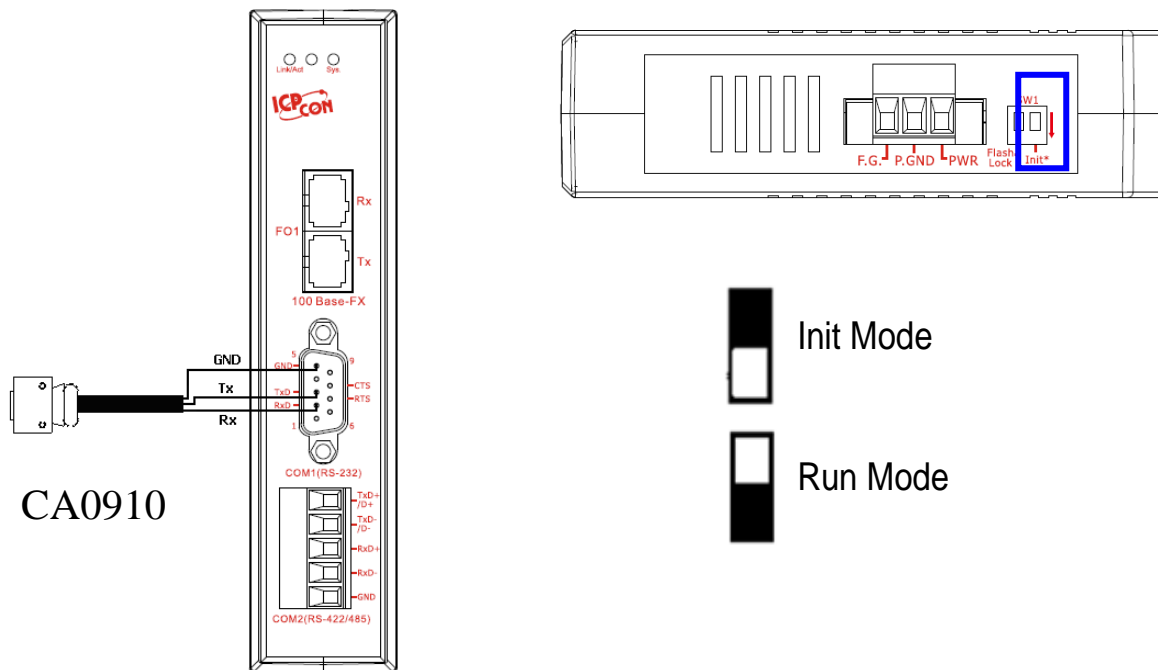
Example:



```
7188XW 1.36 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\Documents and Settings\User\桌面\pds7...
Ucom3230>quit

uPAC-7186EX_UDP>_
```

Appendix A: Linking to a Development PC



- Step 1: Connect the download-cable, CA0910, between the PDS-220Fx module and COM 1 (or COM 2) of the development PC, as per the diagram above.
- Step 2: Slide SW1 to the Init mode position, as shown in the diagram above.
- Step 3: Unzip the “7188XW_yyyymmdd.zip” file on the PC. The file is located in the CD:\Napdos\MiniOS7\utility folder.
- Step 4: Apply power (+Vs, GND) to the PDS-220Fx module. +Vs can be anywhere from +12 ~ +48 V.
- Step 5: Execute 7188XW.EXE/C#, and change the Baud rate to 115200 bps and parity, data and stop bits to N81. “/C#” is the COM port of the development PC.
- Step 6: Press [Enter] twice on the development PC:

```
7188XW 1.28 [COM1:115200,N,8,1],FC=0,CTS=0, DIR=C:\n
7188x for WIN32 version 1.28 <2005/01/27>[By ICPDAS. Tim.]
[Begin Key Thread...]Current set: Use COM1 115200,N,8,1
AutoRun:
Autodownload files: None
Current work directory="C:\n"
original baudrate = 115200!
now baudrate = 115200!
uPAC-7186EX_UDP>
```

Step 7: Read the configuration of the PDS-220Fx:

```
uPAC-7186EX_UDP>ip
IP=10.0.8.20
uPAC-7186EX_UDP>mask
MASK=255.255.255.0
uPAC-7186EX_UDP>gateway
Gateway=10.0.8.254
uPAC-7186EX_UDP>mac
Ethernet Address = 00:0d:e0:20:00:07
uPAC-7186EX_UDP>setcom 1
Current set is: 9600,8,0,1
```

Read configuration command

- ip
- mask
- gateway
- mac
- setcom port

Note: The configuration of the PDS-220Fx can be changed in the following manners:

```
uPAC-7186EX_UDP>ip 192.168.41.1
Set IP=192.168.41.1
[ReadBack]IP=192.168.41.1
uPAC-7186EX_UDP>mask 255.255.255.0
Set MASK=255.255.255.0
[ReadBack]MASK=255.255.255.0
uPAC-7186EX_UDP>gateway 192.168.41.4
Set GATEWAY=192.168.41.4
[ReadBack]Gateway=192.168.41.4
uPAC-7186EX_UDP>setcom 1 115200,n,8,1
Current set is: 9600,8,0,1
Set to: 115200,8,0,1 [checksum:CC]
```

Settings configuration command

- ip [new ip]
- mask [new mask]
- gateway [new gateway]
- mac [new mac]
- setcom port
[baud][data_bit][parity][stop_bit]

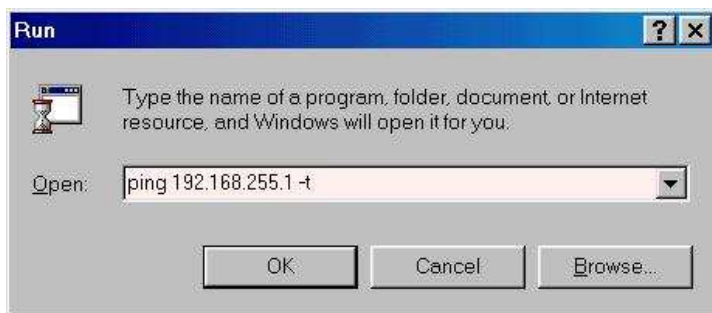
“setcom” parameters are as follows:

Port	1 - 2
Baud Rate	2 - 921600
Data Bit	7, 8
Parity	N, n : None parity E, e : Even parity O, o : Odd parity M, m : Mark, parity = 1 S, s : Space, parity = 0
Stop Bit	1

Step 8: Move SW1 to the Run mode position, as shown in the diagram above.

Step 9: Power-off the module and then power on again.

Step 10: Execute **ping 192.168.255.1 -t** by using a run command as follows:



← Execute Ping 192.168.255.1 on the PC client.

```
Pinging 192.168.255.1 with 32 bytes of data:
Reply from 192.168.255.1: bytes=32 time=5ms TTL=64
Reply from 192.168.255.1: bytes=32 time=2ms TTL=64
Reply from 192.168.255.1: bytes=32 time=1ms TTL=64
Reply from 192.168.255.1: bytes=32 time=2ms TTL=64
Reply from 192.168.255.1: bytes=32 time=2ms TTL=64
Reply from 192.168.255.1: bytes=32 time=1ms TTL=64
Reply from 192.168.255.1: bytes=32 time=2ms TTL=64
Reply from 192.168.255.1: bytes=32 time=2ms TTL=64
Reply from 192.168.255.1: bytes=32 time=1ms TTL=64
Reply from 192.168.255.1: bytes=32 time=1ms TTL=64
Reply from 192.168.255.1: bytes=32 time=1ms TTL=64
```

← The ping results should be smooth and continuous

Note:

- **192.168.255.1** is the default IP of the PDS-220Fx module. The IP address can be changed using the instructions in step 8.
- If the PDS-220Fx cannot be successfully pinged from the PC, refer to step 8 for details of how to change the configuration of the PDS-220Fx module.
- The MAC address of the PDS-220Fx module should be unique on the same network. Refer to step 8 for details of how to change the MAC address of the PDS-220Fx module.
- The default MAC address is unique to each individual PDS-220Fx.

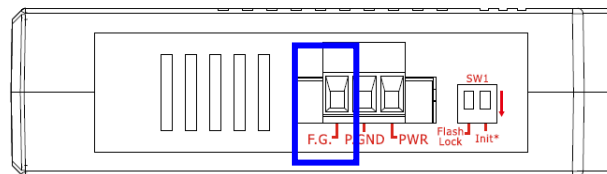
In general, if the host PC can ping the PDS-220Fx module smoothly and continuously, all other software and drivers for the PDS-220Fx module will operate correctly. Therefore, users should ensure that the development PC is able to ping the PDS-220Fx module smoothly before any further testing is carried out.

Appendix B: Frame Ground

Electronic circuits are constantly vulnerable to Electro Static Discharge (ESD), which becomes worse in a continental climate area. PDS-220Fx series modules feature a new design for the frame ground, which provides a path for bypassing ESD, allowing enhanced static protection capability and ensures that the module is more reliable.

It is recommended that the Frame Ground of the PDS-220Fx module is connected to the earth ground, such as the ground of an AC power supply, to provide better ESD protection for the module.

The PDS-220Fx module is designed with a Frame Ground contact point, F.G., as shown in the figure below.



Glossary

1. ARP (Address Resolution Protocol)

Consider two machines, A and B, that share a physical network. Each has an assigned IP address, IP_A and IP_B , and a MAC address, MAC_A and MAC_B . The goal is to devise low-level software that hides MAC addresses and allows higher-level programs to work only with the IP addresses. Ultimately, however, communication must be carried out by the physical networks using whatever MAC address scheme the hardware supplies.

Suppose machine A wants to send a packet to machine B across a physical network to which they are both attached, but A only has the Internet address for B, IP_B . The question arises: how does A map that address to the MAC address for B, MAC_B ?

ARP provides a method of dynamically mapping a 32-bit IP address to the corresponding 48-bit MAC address. The term dynamic is used since it happens automatically and is normally not a concern for either the application user or the system administrator.

2. Clients and Servers

The client-server paradigm uses the direction of initiation to categorize whether a program is a client or server. In general, an application program that initiates peer-to-peer communication is called a client. End users usually invoke client programs when they use network services.

Most client programs consist of conventional application program development tools. Each time a client program is executed; it contacts a server, sends a request and waits for a response. When the response arrives, the client program continues processing. Client programs are often easier to develop than servers, and usually require no special system privileges to operate.

By comparison, a server is any program that waits for incoming requests from a client program. The server receives a request from a client, performs the necessary computation and returns the result to the client.

3. Firmware

Firmware is an alterable program located or stored in the semi-permanent storage area, e.g., ROM, EEPROM, or Flash memory.

4. Gateway

Computers that interconnect two networks and pass packets from one to the other are called Internet Gateways or Internet Routers. Gateways route packets that are based on the destination network, not on the destination host.

5. ICMP (Internet Control Messages Protocol)

No system works correctly all the time. ICMP provides a method of communicating between the Internet Protocol software on one machine and the Internet Protocol software on another. It allows gateways to send error or control messages to other gateways or allows a host to find out what is wrong with the network communication.

6. Internet

Physically, the Internet is a collection of packet switching networks interconnected by gateways along with the TCP/IP protocol that allows them to perform logically as a single, large and virtual network. The Internet recognizes hosts using 32-bit IP address.

7. IP (Internet Protocol) address

Every interface on an Internet must have a unique IP address (also called an Internet address). These addresses are 32-bit numbers. They are normally written as four decimal numbers, one for each byte of the address, such as “**192.168.41.1**”. This is called dotted-decimal notation.

8. MAC (Media Access Control) address

To allow a computer to determine which packets are meant for it, each computer attached to an Ethernet is assigned a 48-bit integer known as its MAC address (also called an Ethernet address, hardware address or physical address). They are normally written as eight hexadecimal numbers such as “**00:71:88:af:12:3e:0f:01**”. Ethernet hardware manufacturers purchase blocks of MAC addresses and assign them in sequence as they manufacture the Ethernet interface hardware. Thus, no two hardware interfaces have the same MAC address.

9. Optical fiber

Optical fiber is made up of the core, which carries the light pulses, the cladding, which reflects the light pulses back into the core, and the buffer coating, which protects the core and cladding from moisture, damage, etc. Together, this creates a fiber optic cable which can carry up to 10 million messages at any time using light pulses. Fiber optics is the overlap of applied the science and the engineering field concerned with

the design and application of optical fibers. Optical fibers are widely used in fiber-optic communications, which permits transmission over longer distances and at higher bandwidths (data rates) than other forms of communications.

10. Packet

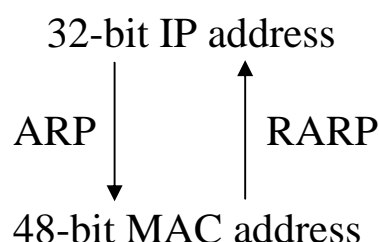
A packet is the unit of data sent across a physical network. It consists of a series of bits containing data and control information, including the source and the destination node (host) address, and is formatted for transmission from one node to another.

11. Ping

Ping sends an ICMP echo request message to a host, expecting an ICMP echo reply to be returned. Normally, if a host cannot be pinged, you won't be able to use Telnet or FTP to connect to the host. Conversely, if Telnet or FTP cannot be used to connect to a host, Ping is often the starting point to determine what the problem is.

12. RARP (Reverse Address Resolution Protocol)

RARP provides a method of dynamically mapping 48-bit MAC address to the corresponding 32-bit IP address.



13. Socket

Each TCP segment contains the source and destination port number that can be used to identify the sending and receiving application. These two values, along with the source and destination IP address in the IP header, uniquely identify each connection.

The combination of an IP address and a port number is called a socket.

14. Subnet Mask

The Subnet mask is often simply called the mask. Given its own IP address and its subnet mask, a host can determine if a TCP/IP packet is destined for a host that is (1) on its own subnet, or (2) on a different network. If (1), the packet will be delivered directly; otherwise if the packet will be delivered via gateways or routers.

15. TCP (Transmission Control Protocol)

TCP provides a reliable flow of data between two hosts. It is associated with tasks such as dividing the data passed to it from applications into appropriately sized chunks for the network layer below, acknowledging received packets, setting timeouts to make certain that the other end acknowledges packets that are sent, and so on.

16. TCP/IP

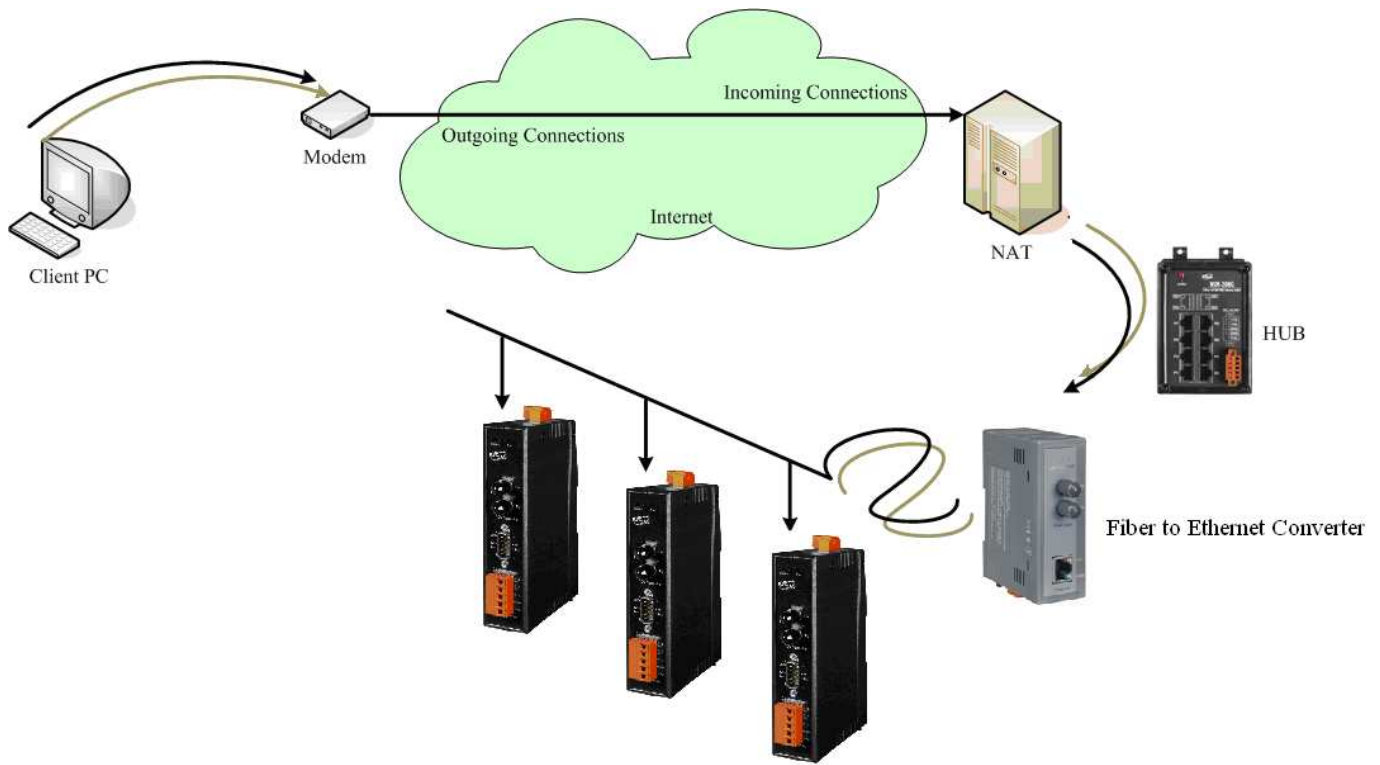
The Transmission Control Protocol (TCP) and the Internet Protocol (IP) are the standard network protocols. They are almost always implemented and used together and are called TCP/IP. TCP/IP can be used to communicate across any set of interconnected networks.

17. UDP (User Datagram Protocol)

UDP provides a much simpler service to the application layer. It just sends packets of data from one host to the other, but there is no guarantee that the packets will reach the destination host.

FAQ

1. How do I access a remote PDS-220Fx that is situated behind an NAT or firewall?



The [remote site must have a NAT server](#) (or a router that supports NAT). NAT stands for Network Address Translator.

By using (configuring) the NAT server, [NAT can forward \(bypass\) all specified tcp port connections to specified PDS-220Fx devices.](#)

For example:

NAT: 10000 ~ 10002 maps to 192.168.1.101: 10000 ~ 10002

NAT: 10010 ~ 10012 maps to 192.168.1.102: 10000 ~ 10002

Please note, if your NAT (router) contains a built-in **firewall** feature, you will have to **configure the NAT to allow incoming TCP** port connections.

For example:

TCP port includes 10000 ~ 10002 and 10010 ~ 10012 of NAT.

In the VxComm Utility, you have to [add PDS-220Fx by using the NAT address and the NAT TCP ports instead](#) of the PDS-220Fx settings.

For example:

To add the first PDS-220Fx, it's IP Port should be NAT: 10000.

To add a second PDS-220Fx, it's IP Port should be NAT: 10010.

2. How do I open a virtual COM port greater than "COM 9" by calling CreateFile() Win32 API?

If you want to open "COM 10", the correct method of calling the CreateFile() is as follows:

CreateFile(

```
"\\\\. \\COM10",    // address or name of the communications device
fdwAccess,        // access mode (read-write)
0,                // share mode
NULL,             // address of the security descriptor
OPEN_EXISTING,    // create method
0,                // file attributes
NULL              // file handling with the attributes to be copied
);
```

NOTES:

1. This syntax also works for COM ports 1 through 9. For more information, see [MS Q115831](#).
2. The Maximum numbers of COM port that can be accessed using the VxComm Driver is 256.
3. A Valid COM port number for MSCOMM.OCX must be between 1 and 16. Please refer to [MSComm.CommPort](#) for more details.
4. The "\\." prefix must be added to the COM port name (device name) if it is greater than "COM 9". Please note, however that, the "\" character is a special escape symbol in the C\C++ language, so you have to use the "\\\\" prefix in C\C++.

3. Does the VxComm Driver (PC) support auto-reconnection after fixing a network break?

Yes, the [VxComm Driver](#) (PC) supports the auto-reconnection mechanism in version 2.00 and above. The [VxComm Utility](#) allows the user to set the Keep-Alive Time (ms) and Connection-Broken Time (ms) in the server options.

For more details, refer to the "[Adding a PDS server and configuring the VxComm Driver](#)" section of the [VxComm Driver/Utility](#) User Manual.

4. Why doesn't the VxComm Driver (PC) receive data from the PDS-220Fx module?

Make sure that the [PDS-220Fx](#) module is operating in mode 0 (/M0). The [PDS-220Fx](#) module uses the following communication modes:

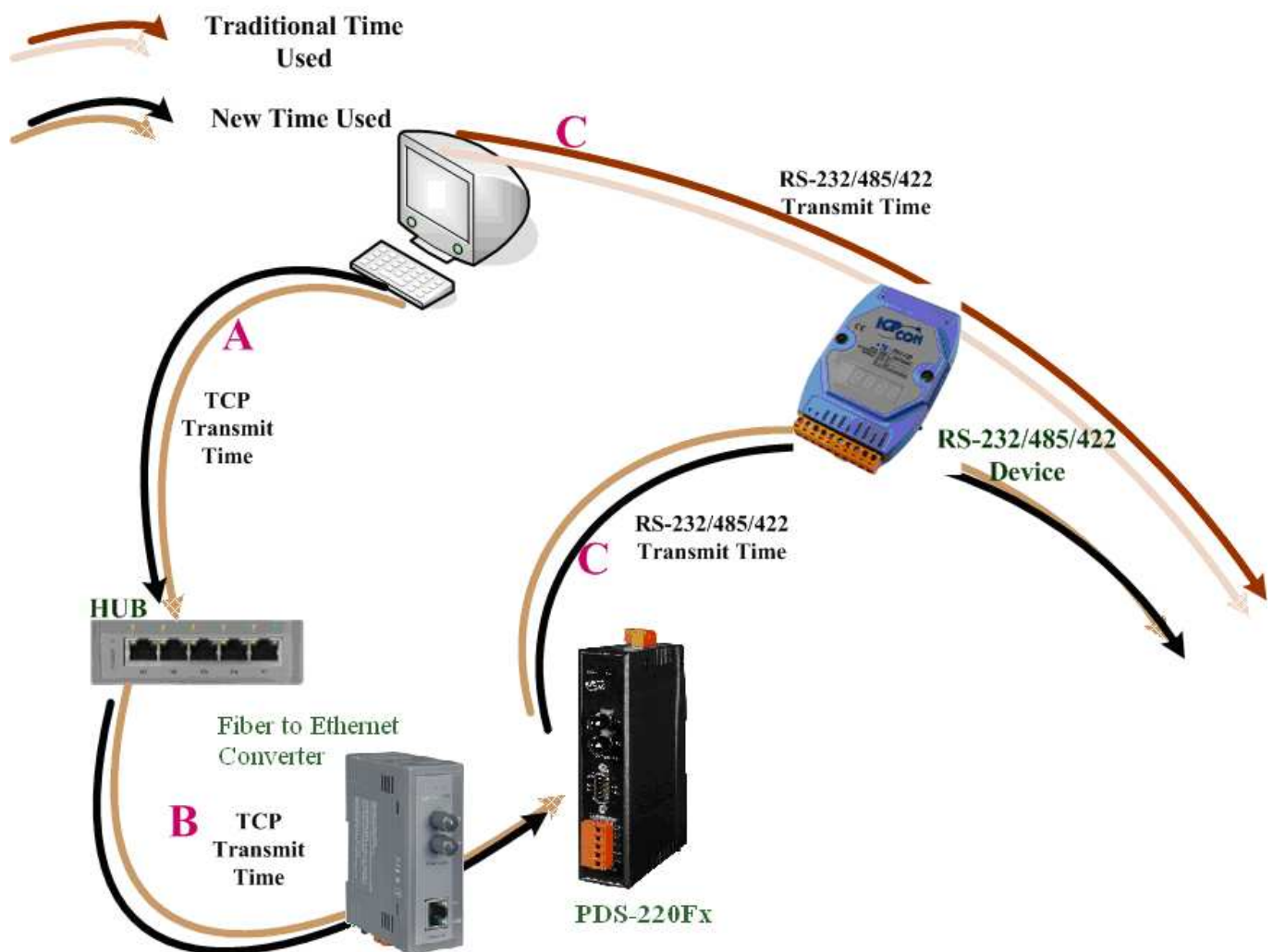
/M0	Transparent Mode (Multi-echo, shared). In this mode, data is echoed from the COM ports of the PDS-220Fx module to each client that is connected to the PDS-220Fx module.	
/M1	Slave Mode (Single-echo, Non-Shared). In this mode, data is echoed from the COM ports of the PDS-220Fx module to the specific client that requested the service.	Version 2.6.12 and above

In /M1 mode, if the client does not send a request to the COM port of the [PDS-220Fx](#) module, then the module won't return any data to it. For more information, please refer to section 5.4 "[COM Port Settings](#)".

Other reasons causing the problem may be: **incorrect wiring, power supply problems IP conflicts, MAC conflicts, an incorrect subnet mask or an invalid IP address.** For more details, refer to the "[Diagnostics and Troubleshooting](#)" section of the VxComm Driver/Utility User Manual.

5. Does transmission speed become faster when a serial device is working with Serial to Fiber optic device servers?

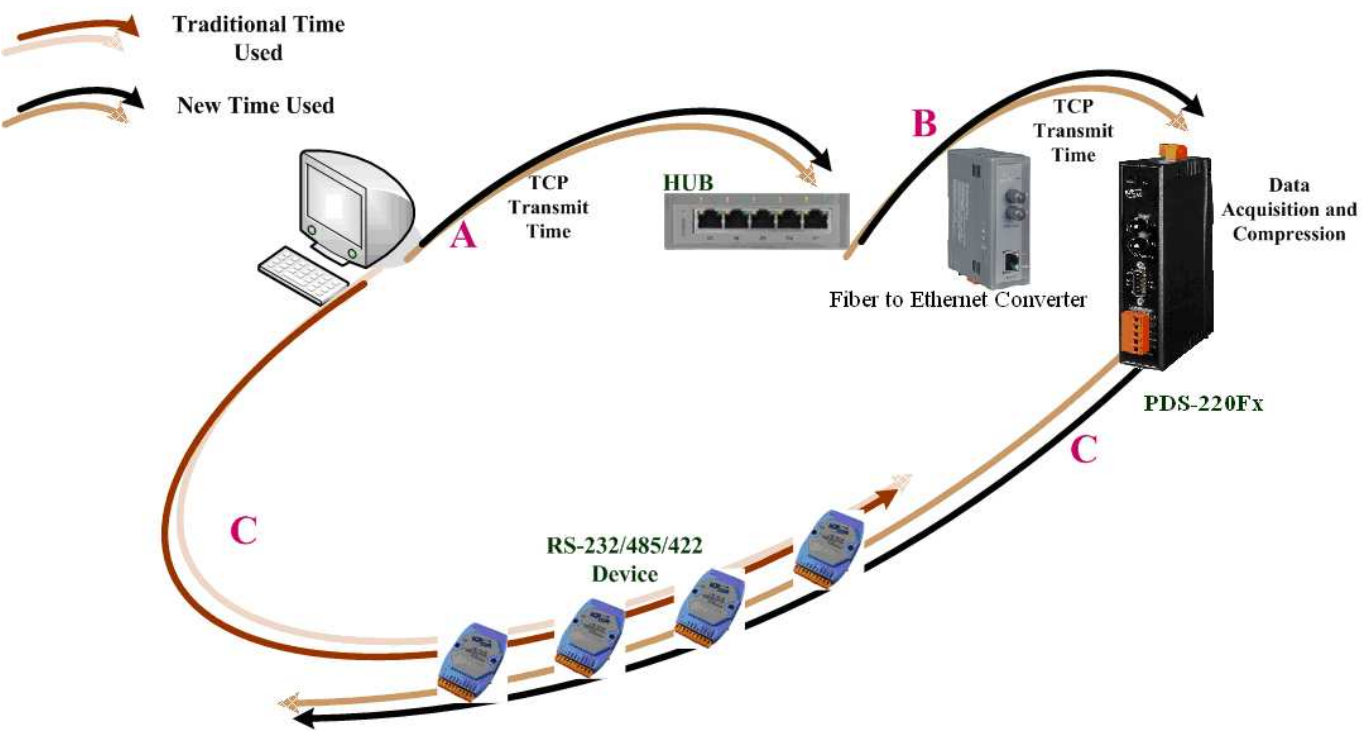
The speed depends on the applications. For transparent applications, Ethernet latency is included in the transmission and may become slower. However, you can improve communication speed by increasing the Baud rate since you can place the device server closer to the serial device and reduce the communication distance. Higher Baud rate should be able to be used for short cable distances without any communication problems.



Traditional time used	RS-232/485/422 transmit time (C)
New time used	Internet/Fiber optic transmit time + RS-232/485/422 transmit time (A+B+C)

(All TCP packets need an extra ACK packet to commit the transmit action. This also causes a little additional delay in communication).

For **Xserver** applications, transmission speed can become faster. Users can write their own Xserver applications to acquire data automatically, and then compress and transmit this large amount data at one time. Your application can reach a high performance by pre-acquiring data before being required by the client and then the response will be immediate.



Traditional time used	RS-232/485/422 transmit time ($C * n$ modules)
New time used	Internet/Fiber optic transmit time ($A + B + C$)

6. Why does the PDS-220Fx module fail on a public Internet connection?

The default IP address of the PDS-220Fx module is 192.168.255.1, which can only be used on a private Internet connection. A private network packet will not be routed via a public Internet connection, which is the reason why the PDS-220Fx module failed on the Internet.

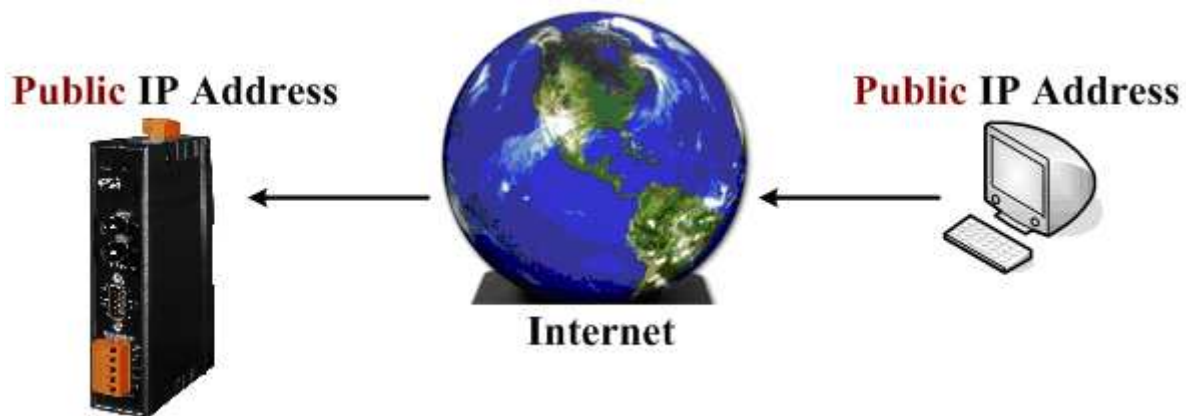
The IANA has reserved three address spaces for private internets (RFC1918).

10.0.0.0 - 10.255.255.255 (10/8 prefix)

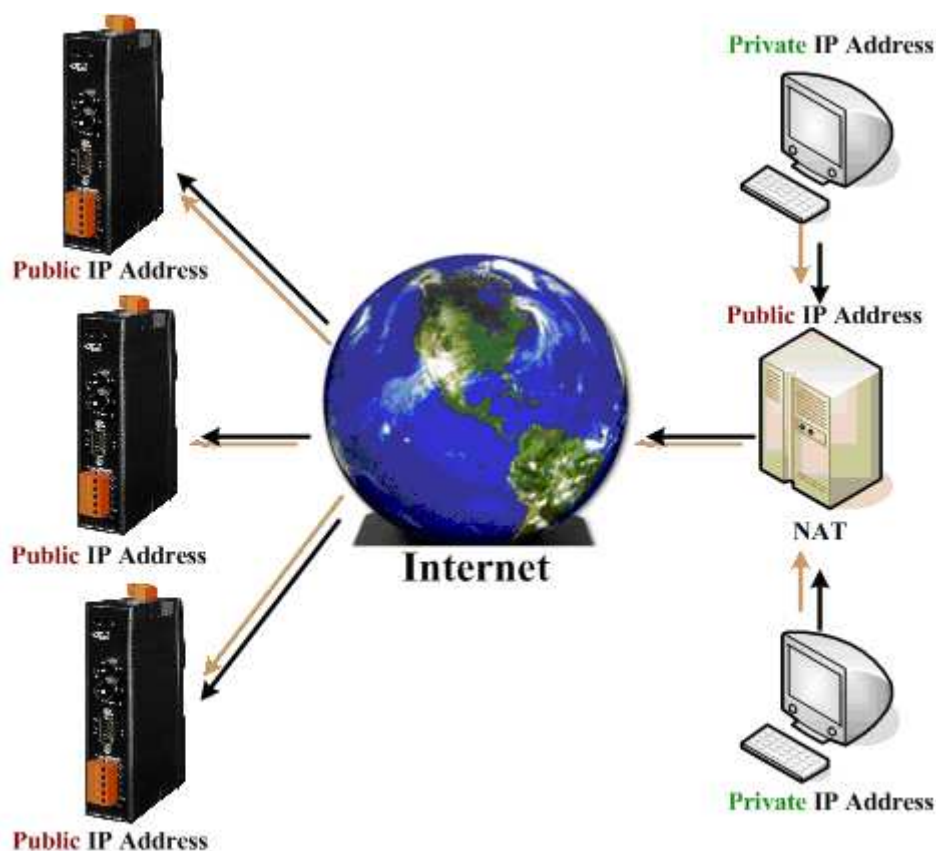
172.16.0.0 - 172.31.255.255 (172.16/12 prefix)

192.168.0.0 - 192.168.255.255 (192.168/16 prefix)

The PDS-220Fx module is able to operate on the Internet using a legal public IP address, which can be obtained from your ISP or network administrator.



A private internet client may communicate with a public Internet server (PDS-220Fx modules) only if the NAT service for the client is available.



Note:

<i>IANA</i>	<i>Internet Assigned Numbers Authority</i>
<i>RFC</i>	<i>Request for Comments</i>
<i>ISP</i>	<i>Internet Service Providers</i>
<i>NAT</i>	<i>Network Address Translator</i>

7. Can I use the SetCommState() API to change the Baud rate/data format settings of a virtual COM port?

Yes. In a Win32 environment, the CreateFile() API should be called to open the COM port(s) and then the SetCommState() API can be used to configure the settings.

Third-party tools may provide an OpenCom() function that can be used to accessing a COM port. In actuality, the CreateFile() and SetCommState() APIs must be used to implement these kinds of functions.

8. How many PCs can be connected to a single PDS-220Fx device?

This depends on how many serial ports are available on the PDS-220Fx module and how many serial ports that can be connected to on each PC.

The PDS-220Fx module has 32 sockets in total, including some reserved listening sockets. The PDS-220Fx module provides a single command port for configuring the data (serial) ports. Thus, no matter how many data (serial) ports on the PDS-220Fx are used, one more socket connection is needed for the command port in order to configure them.

Model	Data Ports	Listening Sockets	Available Sockets	Max. PCs when using all data ports	Max. PCs when using 1 data port
PDS-220Fx	2	6	$32 - 6 = 26$	$29/3 = 9$	$29/2 = 14$

Notes:

1. CMD Port = Command Port (TCP port 10000). The CMD Port is used to configure the data ports (TCP port 10001 ~ 10008) of a PDS-220Fx module, such as Baud rate, and data format, etc.
2. The data port (TCP port 10001 ~ 10008, which are mapped to serial ports 1 ~ 8 of 7188E/8000E/PDS-220Fx), is only used to send/receive data.
3. The Listening Sockets (for PDS-220Fx modules) = Number of Data ports + 1 CMD port + IO port + Web + Telnet + UDP Search.
4. The number of Available Sockets (for PDS-220Fx modules) = max. (32) sockets - Listening sockets.
5. The maximum number of PCs when using all data ports of the PDS = Available sockets/(data ports + 1 command port).
6. The maximum number of PCs when using 1 data port of the PDS = Available sockets/(1 data port + 1 command port).
7. The web uses TCP port 80 and can be disabled if necessary.)

-
8. Telnet uses TCP port 23 and can be disabled if necessary
 9. The UDP search function will occupy one socket.
 - UDP = 0 → Doesn't support UDP search
 - UDP = 1 → Supports UDP search and always occupies one socket
 - UDP = 2 → Supports UDP search but while there is a connection present, the UDP search function will be stopped.

9. Can I search for connect to the PDS-220Fx if the IP address of my PC is not in the PDS-220Fx IP filter list? How can I solve this problem?

- A. No, you cannot search for connect to the PDS-220Fx if the IP Address of your PC is not in the PDS-220Fx IP filter list. You can solve the problem by using the following method:
1. Add the IP address of your PC to the PDS-220Fx IP filter table by using the console command “IPFILTER” as detailed in section 8.4.1.
 2. Change the IP address of your PC to one of the IP addresses listed in the IP filter table.
 3. Disable the IP filter function on the PDS-220Fx by using the console command. Refer to section 8.4.1 for detail.
 4. Clear all configuration settings on the PDS-220Fx by using the “config=RESET” command detailed in section 8.4.22. This command also clears the IP filter table, password, and alias settings, etc., and you will have to reboot the PDS-220Fx to load any new configuration.