WFS802g WiFi 802.11 Serial Module with Antenna
Module User Manual

Table of Contents

I.   Introduction

The WFS802g WiFi (802.11g) serial module is the most compact, integrated solution available to add 802.11g wireless networking to your robots with a serial interface.

To enable access to a local network or the internet, the WFS802g integrates a fully developed TCP/IP network stack and OS. The WFS802g also includes an embedded web server that can be used to remotely configure, monitor, or troubleshoot the attached device.

The WFS802g is the most compact, integrated solution available to add 802.11g wireless networking to any device with a serial interface. Using our highly integrated hardware and software platform, you will add to your bottom line by significantly reducing product development time, risk, and cost.

Features

- Serial to 802.11g conversion
- Dual serial ports up to 921.6kbps per port
- Integrated industry standard 802.11g wireless interface
- 128bit WEP Encryption for security
- Connect any serial device to a wireless network
- Stable, field proven TCP/IP protocol suite and Web-based application framework
- Easy configuration through a web interface
- Embedded web server
- High performance throughput

Applications
- Robotic systems: both run-time and development-stage communication
- General-purpose wireless data communication

II.   Operations

II.1.   Protocol Support

The WFS802g uses the widely accepted 802.11g protocol to connect to a wireless access point or an ad hoc network. It uses the Transmission Control Protocol (TCP) to ensure that no data is lost or duplicated and everything sent to the connection arrives correctly at the target.

The WFS802g also supports User Datagram Protocol (UDP) for typical datagram applications in which devices interact with other devices without maintaining a point-to-point connection.

III.   Connections

III.1.   Board Structure

Figure III.1 illustrates the structure of the board

Figure III.1 WFS802g Structure

III.2. Connector Description

The WFS802g is connected to WiRobot system via an 8-pin 2.54 mm-pitch single row connector1 (COM1):

Table III.1 Connector1 (COM1)

Pin	Name	Function
1	VCC	+3.3 V
2	RXD	Data receiving
3	TXD	Data transmitting
4	RTS	Request to send
5	CRTS	Clear to send
6	GND	Power supply ground
7	NC	Reserved
8	NC	Reserved

Table III.2 Connector2 (COM2)

Pin	Name	Function
1	NC	Reserved
2	RXD	Data receiving
3	TXD	Data transmitting
4	RTS	Request to send
5	CRTS	Clear to send
6	GND	Power supply ground
7	NC	Reserved
8	NC	Reserved

IV. Specifications

Table IV.1 WFS802g Specification

Network Standard	IEEE 802.11g
Frequency Range	2.412 – 2.484 GHz
Radio # of Selectable Channels	14 Channels
Security	Password protection, locking features, WEP 64/128
Maximum Receive Level	-10dBm (with PER < 8%)
Receiver Sensitivity	. -82dBm for 11Mbps . -87dBm for 5.5Mbps . -89dBm for 2.0Mbps . -93dBm for 1.0Mbps
WLAN Power and Link LED Current	Max: 4mA
Firmware	Upgradeable via serial port
Serial Interface	CMOS (Asynchronous) 3.3V-level signals Rate is software selectable (300 bps to 921600 bps)
Serial Line Formats	7 or 8 data bits, 1-2 Stop bits, Parity: odd, even, none
Modem Control	DTR, DCD
Flow Control	XON/XOFF (software), CTS/RTS (hardware), none
Network Interface	Wireless 802.11g
Protocols Supported	802.11b/g, UDP, TCP, DHCP
Data Rates With Automatic Fallback	. 11Mbps . 5.5Mbps . 2Mbps . 1Mbps
Media Access Control	CSMA/CA with ACK
Frequency Range	2.412 – 2.484 GHz
Range	Up to 328 feet indoors
Modulation Techniques	. CCK (11Mbps) . CCK (5.5 Mbps) . DQPSK (2 Mbps) . DBPSK (1 Mbps)
Transmit Output Power	14dBm ±1dBm
Average Power Consumption	. 1280 mW (WLAN mode; maximum data rate) . 820 mW (WLAN mode; idle) . 710 mW (Ethernet mode)
Peak Supply Current	460 mA
Management	Internal web server
Weight with antenna	50 grams
Temperature	Operating range, WLAN: -40ºC to +70ºC
Size (w/o antenna)	50 mm x 40 mm x 15 mm

V. Configuration via Serial Mode or Telnet Port

Configure the unit so that it can communicate on a network with your serial device.

The WFS802g unit is configurable using a terminal program to access the serial port locally. Using this terminal program to respond to prompts is referred to as the Setup Mode. A Telnet connection may also be used to configure the unit over the network.

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.

Note: The menus in this section show a typical device. Not all devices display information in the same manner.

This chapter includes the following topics:

- . Accessing Setup Mode
- . Server Configuration
- . Channel 1 and Channel 2 Configuration
- . Email Configuration
- . WLAN Settings
- . Expert Settings
- . Security Settings
- . Factory Defaults
- . Exit Configuration Mode
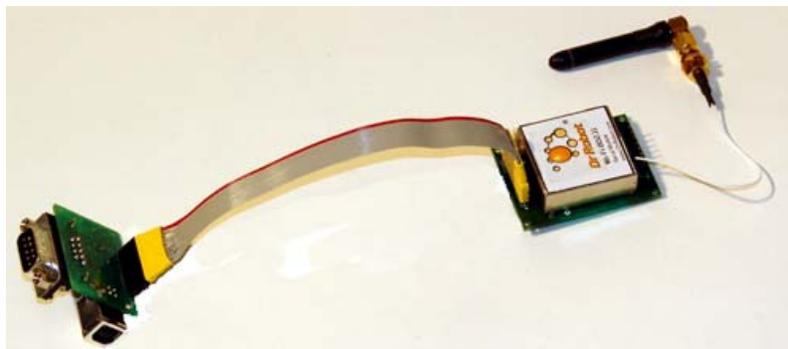
Figure V.1 Connection WFS802g with MCR3210P RS232 Interface Module

V.1. Accessing Setup Mode

V.1.1. Telnet Access

To configure the unit over the network, establish a Telnet connection to port 9999:

1. From the Windows **Start** menu, click **Run**.

2. From the Run dialogue box, type the following command (where x.x.x.x is the IP address and 9999 is the unit's fixed network configuration port number):

Windows: telnet x.x.x.x 9999
UNIX: telnet x.x.x.x:9999

3. Click **OK**. The following information displays:

Figure V.1. MAC Address

MAC address 00204AFFFF30

Software version 05.3(040129)WPT

Press Enter to go into Setup Mode

4. To enter the Setup Mode, press **Enter** within 5 seconds.

*Note: Connection fails if **Enter** is not pressed within 5 seconds.*

The configuration settings display, followed by the setup menu options:

Figure V.2. Setup Menu Options

Change Setup:
    0 Server
    1 Channel 1
    2 Channel 2
    3 Email
    4 WLAN
    5 Expert
    6 Security
    7 Factory defaults
    8 Exit without save
    9 Save and exit   Your choice ?

5. Select an option on the menu by entering the number of the option in the **Your choice ?** field and pressing **Enter**.

View the current configuration by pressing **Enter** from the Change Setup menu. To enter a value for a parameter, type the value and press **Enter**. To confirm a current value, press **Enter** (without inputted parameters).

6. When finished, save the new configurations (**9 Save and exit**). The unit reboots.

V.1.2. Serial Port Access

To configure the unit through a serial connection:

1. Connect a console terminal or PC running a terminal emulation program to your unit's serial port. The default serial port settings are 9600 baud, 8 bits, no parity, 1 stop bit, no flow

control.

2. Reset the WFS802g unit by cycling the unit's power (turning the power off and back on). Immediately upon resetting the device, enter three lowercase **x** characters (**xxx**).

Note: *The easiest way to enter Setup Mode is to hold down the* **x** *key at the terminal (or emulation) while resetting the unit. This must be done within three seconds of resetting the WFS802g.*

3. Upon connection, the following information displays:

Figure V.3. MAC Address

MAC address 00204AFFFF30

Software version 05.3 (040129) WPT

Press Enter to go into Setup Mode

4. To enter the Setup Mode, press **Enter** within 5 seconds

Note: *Connection fails if* **Enter** *is not pressed within 5 seconds.*

The configuration settings display, followed by the setup menu options:

Figure V.4. Setup Menu Options

Change Setup:

    0 Server

    1 Channel 1

    2 Channel 2

    3 Email

    4 WLAN

    5 Expert

    6 Security

    7 Factory defaults

    8 Exit without save

    9 Save and exit   Your choice ?

5. Select an option on the menu by entering the number of the option in the **Your choice ?** field and pressing **Enter.**

View the current configuration by pressing **Enter** from the Change Setup menu. To enter a value for a parameter, type the value and press **Enter**. To confirm a current value, press **Enter** (without inputted parameters).

6. When finished, save the new configurations (**9 Save and exit**). The unit reboots

V.2. Server Configuration

The unit's basic server (i.e. network) values display upon selecting **Server** (option **0** from the Change Setup menu). The following sections describe the configurable parameters within the Server configuration menu.

Set the IP Address

If DHCP is not used to assign IP addresses, enter it manually. The IP address must be set to a unique value in the network.   Enter each octet and press Enter between each section inputted. The current value is displayed in parentheses.

```
IP Address : ( 0) ( 0) ( 0) ( 0)
```

Set the Gateway IP Address

The gateway address, or router, allows communication to other LAN segments. The gateway address should be the IP address of the router connected to the same LAN segment as the unit. The gateway address must be within the local network.

The default is **N** (No), indicating the gateway address has not been set. To set the gateway address, type **Y**. At the prompt, enter the gateway address.

```
Set Gateway IP Address (N) ? Y
Gateway IP addr ( 0) ( 0) ( 0) ( 0)
```

Set the Netmask

A netmask defines the number of bits taken from the IP address that are assigned for the host part.

```
Netmask: Number of Bits for Host Part (0=default) (0)
```

The unit 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 (for example, 255.255.255.0).

Table V.1. Standard IP Network Netmasks Representing Host Bits

Network Class	Host Bits	Netmask
A	24	255.0.0.0
B	16	255.255.0.0
C	8	255.255.255.0

Change Telnet Configuration Password

Setting the Telnet configuration password prevents unauthorized access to the setup menu via a Telnet connection to port 9999 or via web pages. The password must have 4 characters.

```
Change telnet config password (N) ?
```

An enhanced password setting (for Telnet access only) of 16 characters is available under option **6 Security**

from the Change Setup menu.

Note: *A password is not required to access the Setup Mode window via a serial connection.*

DHCP Name

There are three methods for assigning DHCP names to the unit.

- **Default DHCP Name**: If the DHCP name is not changed and the IP is 0.0.0.0, then the DHCP name defaults to CXXXXXX (XXXXXX is the last 6 digits of the MAC address shown on the label on the bottom/side of the unit). For example, if the MAC address is 00-20-4A-12-34-56, then the default DHCP name is C123456.

- **Custom DHCP Name**: Create your own DHCP name. If using an IP address of 0.0.0.0, then the last option in Server configuration is **Change DHCP device name**. This option allows you to change the DHCP name to an alphanumeric name (LTX in the example).

> Change DHCP device name (not set) ? (N)
> Enter new DHCP device name : LTX

- **Numeric DHCP Name:** Change the DHCP name by specifying the last octet of the IP address. When using this method, the DHCP name is LTXYY where YY is the last octet of the IP address. If the IP address specified is 0.0.0.12, then the DHCP name is LTX12. This method only works with 2 digit numbers (0-99).

V.3.   Channel 1 and Channel 2 Configuration

Select option **1 Channel 1** or **2 Channel 2** from the Change Setup menu to define how the serial port responds to network and serial communications. The following sections describe the configurable parameters within the Channel configuration menu.

Figure V.5. Serial and Telnet Port Parameters

```
Baudrate (115200) ?
I/F Mode (4C) ?
Flow (00) ?
Port No (14009) ?
ConnectMode (C0) ?
Remote IP Address : (000) .(000) .(000) .(000)
Remote Port  (0) ?
DisConnMode (00) ?
FlushMode   (00) ?
DisConnTime (00:00) ?:
SendChar 1  (00) ?
SendChar 2  (00) ?
```

Baudrate

The unit and attached serial device, such as a modem, must agree on a speed or baud rate to use for the serial connection. Valid baud rates are 300, 600, 1200, 2400, 4800, 9600 (default), 19200, 38400, 57600, 115200, 230400, 460800, or 921600. The current value is displayed in parentheses.

> Baudrate (9600) ? _

I/F (Interface) Mode

The Interface (I/F) Mode is a bit-coded byte entered in hexadecimal notation. The current value is displayed in parentheses.

I/F Mode (4C) ? _

The following table displays available I/F Mode options:

Table V.2. Interface Mode Options

I/F Mode Option	7	6	5	4	3	2	1	0
RS-232C [1]							0	0
7 Bit					1	0		
8 Bit					1	1		
No Parity			0	0				
Even Parity			1	1				
Odd Parity			0	1				
1 stop bit	0	1						
2 stop bits [1]	1	1						

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

Note: *If attempting to select an I/F Mode bit pertaining to RS-422/485, a "WARNING: RS-422/485 I/F Modes not supported" message displays.*

The following table demonstrates some common I/F Mode settings:

Table V.3. Common Interface Mode Settings

Common I/F Mode Setting	Binary	Hex
RS-232C, 8-bit, No Parity, 1 stop bit	0100 1100	4C
RS-232C, 7-bit, Even Parity, 1 stop bit	0111 1000	78

Flow

Flow control sets the local handshaking method for stopping serial input/output. The current value is displayed in parentheses.

Flow (0) ?

Use the following table to select flow control options:

Table V.4. Flow Control Options

Flow Control Option	Hex
No flow control	00

XON/XOFF flow control	01
Hardware handshake with RTS/CTS lines	02
XON/XOFF pass characters to host	05

Port Number

The **Port No** setting represents the source port number in TCP connections. It is the number that identifies the channel for remote initiating connections. The port number functions as the TCP/UDP source port number for outgoing packets. Packets sent to the unit with this port number are received to this channel. The port number selected is the Incoming TCP/UDP port and Outgoing TCP/UDP source port.

Port No (10001) ?

The current value is displayed in parentheses. The default setting for Port 1 is 10001. The range is 1-65535, except for the following reserved port numbers:

Table V.5. Reserved Port Numbers

Port Numbers	Reserved for
1 – 1024	Reserved
9999	Telnet setup
14000-14009	Reserved for Redirector
30704	Reserved (77F0h)
30718	Reserved (77FEh)

Note: It is recommended to **not** use the reserved port numbers for this setting as incorrect operation may result.

Use Port 0 for the outgoing local port to change with each connection. The port range is 50,000 to 59,999. Each subsequent connection increments the number by 1 (it wraps back around to 50,000).

Only use this automatic port increment feature to initiate a connection using TCP. Set the port to a non-zero value when the unit is in a passive mode or when using UDP instead of TCP.

Connect Mode

Connect Mode defines the unit's connection method and its reaction to incoming connections over the network. The current value is displayed in parentheses.

ConnectMode (C0) ?

Enter Connect Mode options in hexadecimal notation:

Table V.6. Connect Mode Options

Connect Mode Option	7	6	5	4	3	2	1	0
a) Incoming Connection								
Never accept incoming	0	0	0					

Accept with modem-control_in Active	0	1	0					
Always Accept	1	1	0					
b) Response								
Nothing (quiet)				0				
Character response (C=connect, D=disconnect, N=unreachable)				1				
c) Active Startup								
No active startup					0	0	0	0
With any character					0	0	0	1
With modem_control_in Active					0	0	1	0
With a specific start character					0	0	1	1
Manual connection					0	1	0	0
Autostart					0	1	0	1
Hostlist	0	0	1	0				
d) Datagram Type								
Directed UDP					1	1	0	0
e) Modem Mode								
Full Verbose				1	0	1	1	0
Without Echo				0	0	1	1	0
Numeric modem result codes				1	0	1	1	1

a) Incoming Connection

Never Accept Incoming	Rejects all external connection attempts
Accept with modem_control_in Active	Accepts external connection requests only when the modem_control_in input is asserted. Cannot be used with Modem Mode
Always Accept	Accepts any incoming connection when a connection is not already established. Default setting

b) Response

Character Response	A single character is transmitted to the serial port when there is a change in connection state: C = connected, D = disconnected, N = host unreachable. This option is overridden when the Active Start Modem Mode or Active Start Host List is in effect. Default setting is Nothing (quiet).
No Active Startup	Does *not* attempt to initiate a connection. Default setting
With Any Character	Attempts to connect when any character is received from the serial port
Accept with modem_control_in Active	Attempts to connect when the modem_control_in input changes from not asserted to asserted

With a Specific Start Character	Attempts to connect when it receives a specific start character from the serial port. The default start character is carriage return
Manual Connection	Attempts to connect when directed by a command string received from the serial port. The first character of the command string must be a **C** (ASCII 0x43), and the last character must be either a carriage return (ASCII 0x0D) or a line feed (0x0A). No blanks or space characters may be in the command string. Between the first and last command string characters must be a full or partial destination IP address and can include a destination port number. The IP address must be in standard dot-decimal notation and may be a partial address, representing the least significant 1, 2, or 3 bytes of the remote IP address. The period is required between each pair of IP address numbers. If present, the port number must follow the IP address, must be presented as a decimal number in the range 1-65535, and must be preceded by a forward slash (ASCII 0x2F). The slash separates the IP address and the port number. If you omit the port number from a command string, the internally stored remote port number starts a connection. If a partial IP address is presented in a command string, it is interpreted to be the least significant bytes of the IP address and uses the internally stored remote IP address to provide the most significant bytes of the IP address. If the IP address entered is 0.0.0.0/0, the device server enters Monitor Mode. For example, if the remote IP address already configured in the unit is 129.1.2.3, then an example command string would be C3/7. (This would connect to 129.1.2.3 and port 7.) You may also use a different ending for the connection string. For example, C50.1/23 would connect you to 129.1.50.1 and port 23.

Table V.7. Manual Connection Address Example

Command String	Result if remote IP is 129.1.2.3 and remote port is 1234
C121.2.4.5/1	Complete override; connection is started with host 121.2.4.5, port 1
C5	Connects to 129.1.2.5, port 1234
C28.10/12	Connects to 129.1.28.10, port 12
C0.0.0.0/0	Connects to 129.1.28.10, port 12; enters Monitor Mode

Autostart (Automatic Connection)	The unit automatically attempts a connection to the remote IP address and port after booting up
Hostlist	If this option is set to True, the device server scrolls through the host list until it connects to the first available device listed in the host list table. Once it connects, the unit stops further attempts. If this connection fails, the unit continues to scroll through the table until it is able to connect to the next available IP address in the host list. Hostlist supports a minimum of 1 and a maximum of 12 entries. Each entry contains the IP address and the port

	number.
	The hostlist is disabled for Manual Mode and for Modem Mode. The unit will not accept a data connection from a remote device when the hostlist option is enabled.

Figure V.6. Hostlist Example

```
Baudrate (9600) ?
I/F Mode (4C) ?
Flow (00) ?
Port No (10001) ?
ConnectMode (C0) ?25


Hostlist :


No Entry !


Change Hostlist ? (N) Y
01. IP address : (000) 172.(000) 19.(000) 0.(000) 1    Port :
(0) ?23
02. IP address : (000) 172.(000) 19.(000) 0.(000) 2    Port :
(0) ?3001
03. IP address : (000) 172.(000) 19.(000) 0.(000) 3    Port :
(0) ?10001
04. IP address : (000) .(000) .(000) .(000)


Hostlist :
01. IP : 172.019.000.001  Port : 00023
02. IP : 172.019.000.002  Port : 03001
03. IP : 172.019.000.003  Port : 10001


Change Hostlist ? (N) N


Hostlist Retrycounter  (3) ?
Hostlist Retrytimeout  (250) ?
DisConnMode (00) ?
FlushMode  (00) ?
DisConnTime (00:00) ?:
SendChar 1 (00) ?
SendChar 2 (00) ?
```

To enable the hostlist:

1. Enter a **Connect Mode** of 0x20. The menu shows a list of current entries already defined in the product.

2. To delete, modify, or add an entry, select **Yes**. If entering an IP address of 0.0.0.0, that entry and all others after it are deleted.

3. After completing the hostlist, repeat the previous step if necessary to edit the hostlist again.

14

4. For **Retrycounter**, enter the number of times the Lantronix unit should try to make a good network connection to a hostlist entry that it has successfully ARPed. The range is 1-15, with the default set to 3.

5. For **Retrytimeout**, enter the number of seconds the unit should wait before failing an attempted connection. The time is stored as units of milliseconds in the range of 1-65535. The default is 250.

c) Datagram Type

Directed UDP	When selecting this option, the prompt requests the Datagram type. Enter **01** for directed or broadcast UDP.
	When the UDP option is in effect, the unit uses UDP datagrams to send and receive data.

d) Modem Mode

In Modem (Emulation) Mode, the unit presents a modem interface to the attached serial device. It accepts AT-style modem commands, and handles the modem signals correctly.

Normally, there is a modem connected to a local PC and a modem connected to a remote machine. A user must dial from the local PC to the remote machine, accumulating phone charges for each connection. Modem Mode allows you to replace modems with WFS802gs, and to use an Ethernet connection instead of a phone call. By not having to change communications applications, you avoid potentially expensive phone calls.

To select Modem Mode, set the Connect Mode to **C6** (no echo), **D6** (echo with full verbose), or **D7** (echo with 1-character response).

Note: If the unit is in Modem Mode, and the serial port is idle, the unit can still accept network TCP connections to the serial port if Connect Mode is set to C6 (no echo), D6 (echo with full verbose), or D7 (echo with 1-character response).

Without Echo	In Modem Mode, echo refers to the echo of all of the characters entered in command mode; it does *not* mean to echo data that is transferred. Quiet Mode (without echo) refers to the modem *not* sending an answer to the commands received (or displaying what was typed).
Full Verbose	The unit echoes modem commands and responds to a command with a message string shown in the table below.
1-Character Response	The unit echoes modem commands and responds to a command with a single character response.

Table V.8. Modem Mode Messages

Message	Meaning
Full Verbose	
OK	Command was executed without error
CONNECT	A network connection has been established
NO CARRIER	A network connection has been closed

RING n.n.n.n	A remote device, having IP address n.n.n.n, is connecting to this device.
1-Character Response	
0	OK
1	Connected
2	Ring
3	No Carrier
4	Error

Received commands must begin with the two-character sequence **AT** and be terminated with a carriage return character.

The unit ignores any character sequence received *not* starting with AT, and only recognizes and processes single AT-style commands. The unit treats compound AT commands as unrecognized commands.

If the Full Verbose option is in effect, the unit responds to an unrecognized command string that is otherwise formatted correctly (begins with AT and ends with carriage return) with the *OK* message and takes no further action.

If the 1-Character Response option is in effect, the unit responds to an unrecognized command string that is otherwise formatted correctly with *OK* and takes no further action.

When an active connection is in effect, the unit transfers data and does not process commands received from the serial interface.

When a connection is terminated or lost, the unit reverts to command mode. When an active connection is in effect, the unit terminates the connection if it receives the following sequence from the attached serial device:

- No serial data is received for one second.
- The character sequence +++ is received, with no more than one second between each two characters.
- No serial data is received for one second after the last + character. At this time, the unit responds affirmatively per the selected echo/response mode.
- The character string **ATH** is received, terminated with a carriage return. The unit responds affirmatively according to the selected echo/response mode and drops the network connection. The serial interface reverts to accepting command strings.

If this sequence is not followed, the unit remains in data transfer mode.

Table V.9. Modem Mode Commands

Modem Mode Command	Function
ATDTx.x.x.x,pppp or ATDTx.x.x.x/pppp	Makes a connection to an IP address (x.x.x.x) and a remote port number (pppp).
ATDTx.x.x.x	Makes a connection to an IP address (x.x.x.x) and the remote port number defined within the unit.
ATD0.0.0.0	Forces the unit into Monitor Mode. Uses remote IP address and port settings to initiate a connection.
ATD or ATDT	Forces the unit into Monitor Mode. Uses remote IP address

	and port settings to initiate a connection.
ATDx.x.x.x	Makes a connection to an IP address (x.x.x.x) and the remote port number defined within the unit.
ATH	Hangs up the connection (Entered as +++ ATH).
ATS0=n	Enables or disables connections from the network going to the serial port. n=0 disables the ability to make a connection from the network to the serial port. n=1-9 enables the ability to make a connection from the network to the serial port. n>9 is invalid
ATEn	Enables or disables character echo and responses. n=0 disables character echo and responses. n=1 enables character echo and responses
ATVn	Enables 1-character response or full verbose. n=0 enables 1-character response. n=1 enables full verbose.

Note: The unit recognizes these AT commands as single commands such as ATE0 or ATV1; it does not recognize compound commands such as ATE0V.

Remote IP Address

This is the destination IP address used with an outgoing connection. The current value is displayed in parentheses.

> Remote IP Address : (0) (0) (0) (0)

Note: This option is not displayed when Hostlist is enabled from the ConnectMode prompt

Remote Port

Set the remote TCP port number for the unit to make outgoing connections. This parameter defines the port number on the target host to which a connection is attempted.

To connect an ASCII terminal to a host using the unit for login purposes, use the remote port number 23 (Internet standard port number for Telnet services)

> Remote Port (0) ?

Note: This option is not displayed when Hostlist is enabled from the ConnectMode prompt

DisConnMode

Disconnect Mode (DisConnMode) determines the conditions under which the unit will cause a network connection to terminate. The current value is displayed in parentheses.

> DisConnMode (0) ?

In DisConnMode, modem_control_in either drops the connection or is ignored. The following table displays the available input options:

Table V.10. Disconnect Mode Options

Disconnect Mode Option	7	6	5	4	3	2	1	0

Function								
Disconnect with modem_control_in drop (6)	1							
Ignore modem_control_in	0							
Telnet mode and terminal type setup (1)		1						
Channel (port) password (2)				1				
Hard disconnect (3)					0			
Disable hard disconnect					1			
State LED off with connection (4)								1
Disconnect with EOT (&D) (5)			1					

(1) The WFS802g sends the "Terminal Type" upon an outgoing connection.

(2) A password is required for a connection to the serial port from the network.

(3) The TCP connection closes even if the remote site does not acknowledge the disconnection.

(4) When there is a network connection to or from the serial port, the state LED turns off instead of blinking.

(5) When **Ctrl D** or Hex 04 is detected, the connection is dropped. Both Telnet mode and Disconnect with EOT must be enabled for Disconnect with EOT to function properly. **Ctrl D** is only detected going from the serial port to the network.

(6) When modem_control_in transitions from a high state to a low state, the network connection to or from the serial port drops.

Flush Mode

The FlushMode (buffer flushing) parameter controls line handling and network buffers with connection startup and disconnect.

```
FlushMode ( 0) ?
```

Select between two different packing algorithms (the current configuration is displayed within the parentheses). Available Flush Mode options are:

Table V.11. Flush Mode Options

Function	7	6	5	4	3	2	1	0
Input Buffer (Serial to Network)								
Clear with a connection that is initiated from the device to the network				1				
Clear with a connection initiated from the network to the device			1					
Clear when the network connection to or from the device is disconnected		1						
Output Buffer (Network to Serial)								
Clear with a connection that is initiated from the device to the network								1
Clear with a connection initiated from the network to the device							1	
Clear when the network connection						1		

to or from the device is disconnected								
Alternate Packing Algorithm (Pack Control)								
Enable	1							

Pack Control

The packing algorithm defines how and when packets are sent to the network. The standard algorithm is optimized for applications in which the unit is used in a local environment. The alternate packing algorithm minimizes the packet count on the network and is especially useful in applications in a routed Wide Area Network (WAN). Adjusting parameters in this mode can economize the network data stream. Pack control settings are enabled in Flush Mode. Set this value to 00 if specific functions are not needed.

Table V.12. Pack Control Options

Option	7	6	5	4	3	2	1	0
Packing Interval								
Interval: 12ms							0	0
Interval: 52ms							0	1
Interval: 250ms							1	0
Interval: 5sec							1	1
Trailing Characters								
None					0	0		
One					0	1		
Two					1	0		
Send Characters								
2-Byte Send Character Sequence				1				
Send Immediately After Send chars			1					

Packing Interval: Packing Interval defines how long the unit should wait before sending accumulated characters. This wait period is between successive network segments containing data. For alternate packing, the default interval is 12 ms.

Trailing Characters: In some applications, CRC, Checksum, or other trailing characters follow the end-of-sequence character; this option helps to adapt frame transmission to the frame boundary.

Send Characters:

- If 2-Byte Send Character Sequence is enabled, the unit interprets the sendchars as a 2-byte sequence; if this option is not enabled, the unit interprets them independently.
- If Send Immediately After Characters is not set, any characters already in the serial buffer are included in the transmission after a "transmit" condition is found. If this option is set, the unit sends immediately after recognizing the transmit condition (sendchar or timeout).

Note: A transmission might occur if status information needs to be exchanged or an acknowledgment needs to be sent.

DisConnTime (Inactivity Timeout)

Use this parameter to set an inactivity timeout. The unit drops the connection if there is no activity on the serial line before the set time expires. Enter time in the format **mm:ss**, where m is the number of minutes and s is the number of seconds.

```
DisConnTime (0: 0) ?:
```

To disable the inactivity timeout, enter **00:00**. Range is 0 (disabled) to 5999 seconds (99 minutes, 59 seconds). The default is 0.

SendChar 1 and SendChar2

Enter up to two characters in hexadecimal representation

```
SendChar 1 ( 0) ?
SendChar 2 ( 0) ?
```

If the unit receives a character on the serial line that matches one of these characters, it sends the character immediately, along with any awaiting characters, to the TCP connection. This action minimizes the response time for specific protocol characters on the serial line (for example, ETX, EOT). Setting the first SendChar to **00** disables the recognition of the characters. Alternatively, the unit can interpret two characters as a sequence.

Telnet Terminal Type

This parameter displays only if the terminal type option is enabled in Disconnect Mode. If this option is enabled, use the terminal name for the Telnet terminal type. Enter only one name.

If the terminal type option is enabled, the unit also reacts to the EOR (end of record) and binary options, which can be used for applications such as terminal emulation to UNIX hosts.

Channel (Port) Password

This parameter appears only if the channel (port) password option is enabled in Disconnect Mode. If the option is enabled, set a password on the serial port.

V.4.   Email Configuration

Reserved.

V.5.   WLAN Settings

Without adequate protection, a wireless LAN is susceptible to access by unauthorized users. As such, WFS802g includes the Wired Equivalent Privacy (WEP) encryption standard as an additional means of security.

To modify WLAN and WEP settings, select **4 WLAN** from the Change Setup menu.

Enable WLAN

The current value is displayed in parentheses. By default, WLAN is enabled on WFS802g.

```
Enable WLAN (Y) ?
```

Find Network Name

Enter the name of the network in which the WFS802g unit resides. The current value is displayed in parentheses.

```
Find network name (DRI_IBSS) ?
```

Enable Ad Hoc Network Creation

The current value is displayed in parentheses. By default, Ad Hoc network creation is enabled on WFS802g.

```
Enable Ad Hoc network creation (Y) ?

Name (DRI_IBSS) ?

Country 0=US, 1=FR, 2=JP, 3=Other (0) ?

Channel (11) ?
```

Enter Y to enable Ad Hoc network creation and display configurable parameters:

1. At the **Name** prompt, enter the network name as text and hit **Enter**. The default name displays in parentheses.

2. Select a **Country** by entering 0, 1, or 3. By default, 0 (United States) is selected. Press **Enter**.

3. At the **Channel** prompt, enter the WFS802g's channel setting.

Security

As an additional security measure, enable WEP on the WFS802g. The current value is displayed in parentheses. By default, WEP is disabled on WFS802g.

```
Security 0=none, 1=WEP (0) ?
```

Data Rate

WFS802g permits the control of the transmission rate. The default is a data rate up to 11Mbps. The current value is displayed in parentheses.

```
Data rate, Only : 0=1, 1=2, 2=5.5, 3=11 Mbps or
Up to: 4=2, 5=5.5, 6=11 Mbps  (6) ?
```

Power Management

Power management reduces the overall power consumption of the WFS802g unit. Enabling power management increases the response time. The current value is displayed in parentheses.

```
Enable power management (N) ?
```

V.6.   Expert Settings

Note: Change these settings via Telnet or serial connections only.

> *Caution:* *Only an expert should change these parameters. These changes hold serious consequences.*

TCP Keepalive Time

TCP Keepalive time defines how many seconds the unit waits during a silent connection before

checking whether the currently connected network device is still on the network. If the unit does not receive a response, it drops that connection.

```
TCP Keepalive time in s (1s – 65s; 0s=disable): (45)?
```

ARP Cache Timeout

When the unit communicates with another device on the network, it adds an entry into its ARP table. ARP Cache timeout defines the number of seconds (1-600) the unit waits before timing out this table.

```
ARP Cache timeout in s (1s – 65s; 0s=disable): (600)?
```

V.7. Security Settings

> *Note:* *As recommended, set security over the dedicated network or over the serial setup. If the parameters are set over the network (Telnet 9999), someone else could capture these settings.*

> *Caution:* *Disabling both Telnet Setup and Port 77FE prevent users from accessing the setup menu from the network.*

Disable SNMP

Reserved.

SNMP Community Name

Reserved.

Disable Telnet Setup

> *Note:* *If this option is disabled, note that disabling both Telnet Setup and Port 77FE prevents users from accessing the setup menu from the network.*

This setting defaults to the N (No) option. The Y (Yes) option disables access to Setup Mode by Telnet (port 9999). It only allows access locally via the web pages and the serial port of the unit.

```
Disable Telnet Setup (N) ?
```

Disable TFTP Firmware Upgrade

Reserved.

Disable Port 77FE (Hex)

Reserved.

Disable Web Server

The Y (Yes) option disables the web server. This setting defaults to the N (option).

```
Disable Web Server (N) ?
```

Disable Web Setup

The Y (Yes) option disables configuration via the Web-Manager. This setting defaults to the N (option).

```
Disable Web Setup (N) ?
```

Disable ECHO Ports

This setting controls whether the serial port echoes characters it receives. The current value is displayed in parent.

```
Disable ECHO ports (Y) ?
```

Enable Enhanced Password

This setting defaults to the N (option), which permits a 4-character password protecting Setup Mode by means of Telnet and web pages.

```
Enable Enhanced Password (Y) ?
```

The Y (Yes) option allows an extended security password of 16-characters for protecting Telnet access.

Disable Port 77F0 (Hex)

Port 77F0 is a setting that allows a custom application to query or set the eleven WFS802g configurable pins when they are functioning as general purpose I/O (GPIO). Disable this capability, if desired, for security purposes.

```
Disable Port 77F0h ?
```

The default setting, the **N** (No) option, enables GPIO control. The **Y** (Yes) option disables the GPIO control interface.

V.8.   Factory Defaults

Select **7 Factory Defaults** from the Change Setup menu to reset the unit's Channel 1 configuration, Channel 2 configuration, E-mail settings, and Expert settings to the factory default settings. The server configuration settings for IP address, gateway IP address, and netmask remain unchanged. The configurable pins' settings also remain unchanged. The specific settings that this option changes are listed below:

Channel 1 Configuration

Baudrate	9600
I/F Mode	4C (1 stop bit, no parity, 8 bit, RS-232C)

Port No	10001
Connect Mode	CO (always accept incoming connection; no active connection startup)
Hostlist Retry Counter	3
Hostlist Retry Timeout	250 (msec)
Send Character	0x0D (CR)
All other parameters	0

Channel 2 Configuration

Baudrate	9600
I/F Mode	4C (1 stop bit, no parity, 8 bit, RS-232C)
Port No	10002
Connect Mode	CO (always accept incoming connection; no active connection startup)
Hostlist Retry Counter	3
Hostlist Retry Timeout	250 (msec)
Send Character	0x0D (CR)
All other parameters	0

WLAN Settings

Enable WLAN	(Y) Yes
Find Network Name	LTRX_IBSS
Enable Ad Hoc Network Creation	(Y) Yes
Name	LTRX_IBSS
Country	(0) United States
Channel	11
Security	(0) None
Data Rate	11Mbps

Expert Settings

TCP keepalive	45 (seconds)
ARP cache timeout	600 (seconds)

Security Settings

Disable SNMP	(N) No
SNMP Community Name	public
Disable Telnet Setup	(N) No
Disable TFTP Firmware Update	(N) No
Disable Port 77FEh	(N) No
Disable Web Server	(N) No
Disable ECHO ports	(Y) Yes
Enable Enhanced password	(N) No
Disable Port 77F0h	(N) No

Email Settings

Trigger Priority	L
Min. notification interval	1 second
All other parameters	0 (e.g. Email notification and triggers are disabled)

V.9.   Exit Configuration Mode

To exit setup mode:

- Select option **9 Save and exit** from the Change Setup menu to save all changes and reboot the device. All values are stored in nonvolatile memory.

  or

- Select option **8 Exit without save** from the Change Setup menu to exit the configuration mode without saving any changes or rebooting.

VI. Configuration using Web-Manager

This chapter describes how to configure the WFS802g using Web-Manager, DrRobot's browser-based configuration tool. The unit's configuration is stored in nonvolatile memory and is retained without power. The unit performs a reset after the configuration is changed and stored.

This chapter includes the following topics:
- Accessing WFS802g using Web-Manager
- Network Configuration
- Server Configuration
- Host List Configuration
- Channel 1 and Channel 2 Configuration
- WLAN Configuration
- OEM Pin Configuration
- Updating Settings

VI.1. Accessing WFS802g using Web-Manager
Follow the instructions to configure the unit's MAC address

1. Using Serial Port to set the IP. *For more information on the* *Serial Port Access*, *see "Server" on page* *6.*

2. Configure WLAN parameter. *For more information on the* *Serial Port Access*, *see "WLAN" on page* *23.*

Figure VI.1 Web-Manager
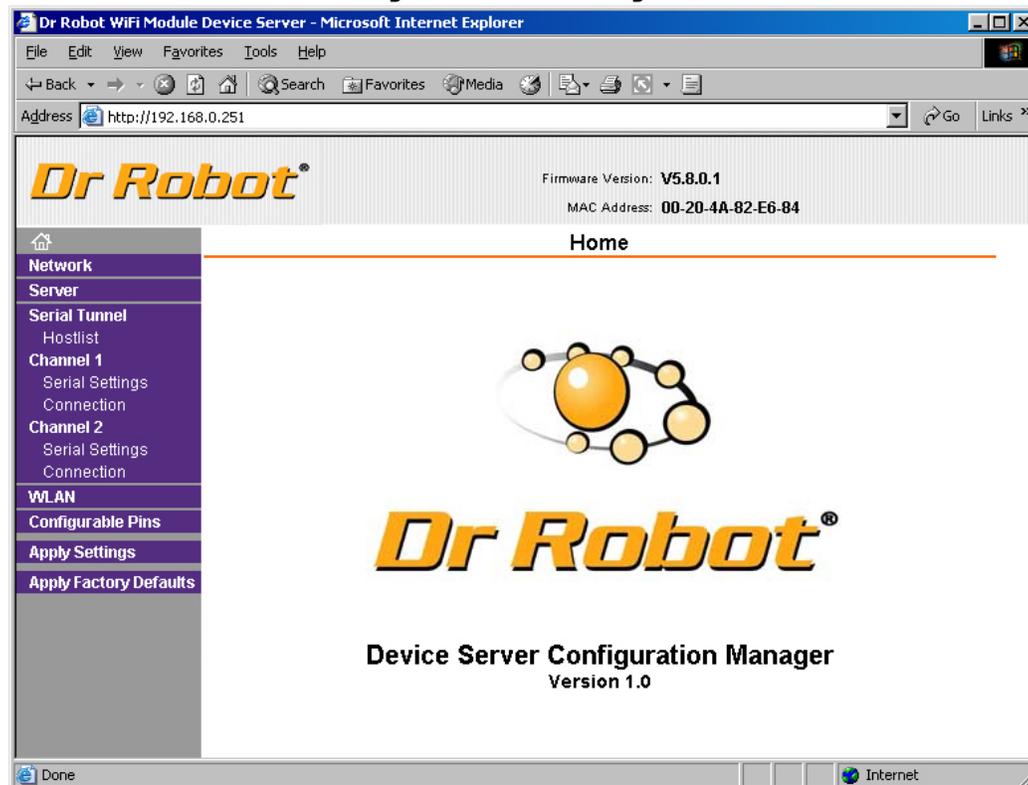
The main menu is displayed in the left side of the Web-Manager window.

Note: Alternatively, access the WFS802g's Web-Manager if it is connected to the network by entering its IP address in a web browser.

VI.2. Network Configuration

The unit's network values display upon selecting **Network** from the main menu. The following sections describe the configurable parameters within the Network configuration menu.

Note: The IP address is assigned via DHCP (on DHCP-enabled networks). Assign a static IP address only if necessary.

Figure VI.2 Network Settings
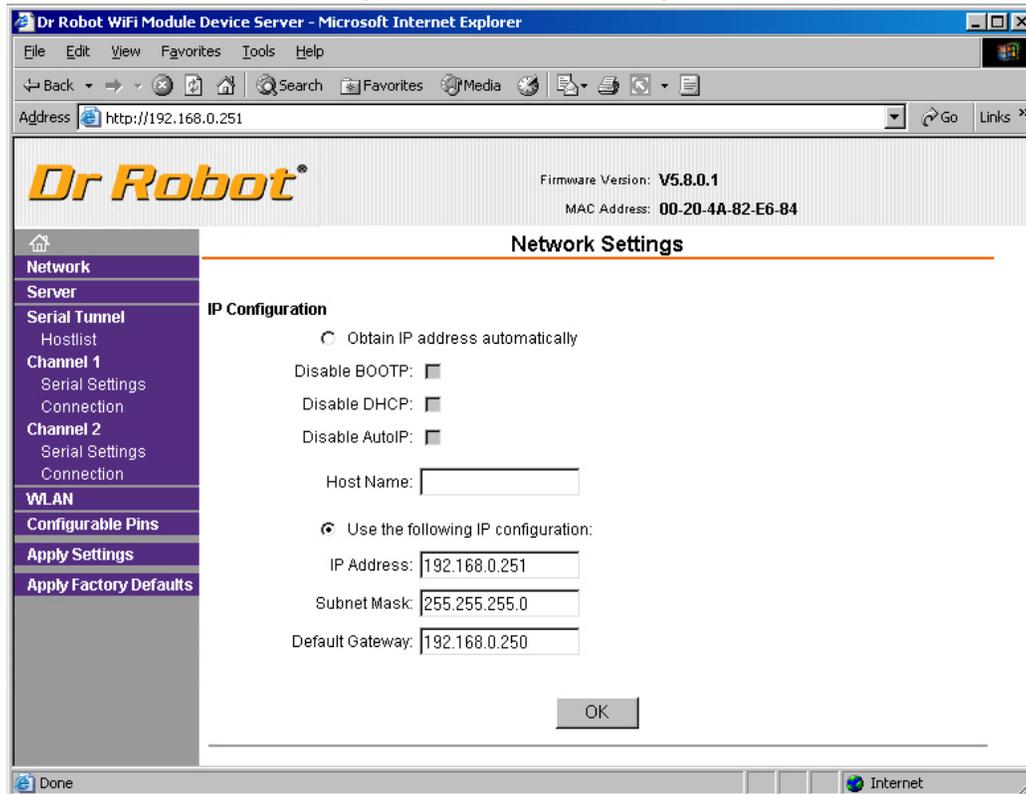
VI.2.1. Automatic IP Address Configuration

To automatically assign an IP address and its network configuration:

1. Click **Network** from the main menu.

2. Select **Obtain IP address automatically**.

3. Enter the following (as necessary):

Disable BOOTP	Leave the checkbox empty to enable Bootstrap Protocol(BOOTP). The BOOTP server automatically assigns the IP address from a pool of addresses.
Disable DHCP	Leave the checkbox empty to enable Dynamic Host Configuration Protocol (DHCP). DHCP automatically assigns a leased IP address to the WFS802g unit.
Disable Auto-IP	The WFS802g generates an IP in the 169.254.x.x address range with a Class B subnet. Select the checkbox to disable this feature.
Host Name	Enter the name of the host on the network.

Note: Disabling BOOTP, DHCP, and Auto-IP (i.e. all three checkboxes) is not advised as the only available IP assignment method will then be ARP or serial port.

4. Click the **OK** button when finished.

VI.2.2. Static IP Address Configuration

To manually assign an IP address and its network configuration:

1. Click **Network** from the main menu.

2. Select **Use the following IP configuration**.

3. Enter the following (as necessary):

IP Address	If DHCP is not used to assign IP addresses, enter it manually. The IP address must be set to a unique value in the network.
Subnet Mask	A subnet mask defines the number of bits taken from the IP address that are assigned for the host part.
Default Gateway	The gateway address, or router, allows communication to other LAN segments. The gateway address should be the IP address of the router connected to the same LAN segment as the unit. The gateway address must be within the local network.

4. Click the **OK** button when finished.

VI.3. Server Configuration

The unit's server values display upon selecting **Server** from the main menu. The following sections describe the configurable parameters within the Server configuration menu.

Figure VI.3 Server Settings
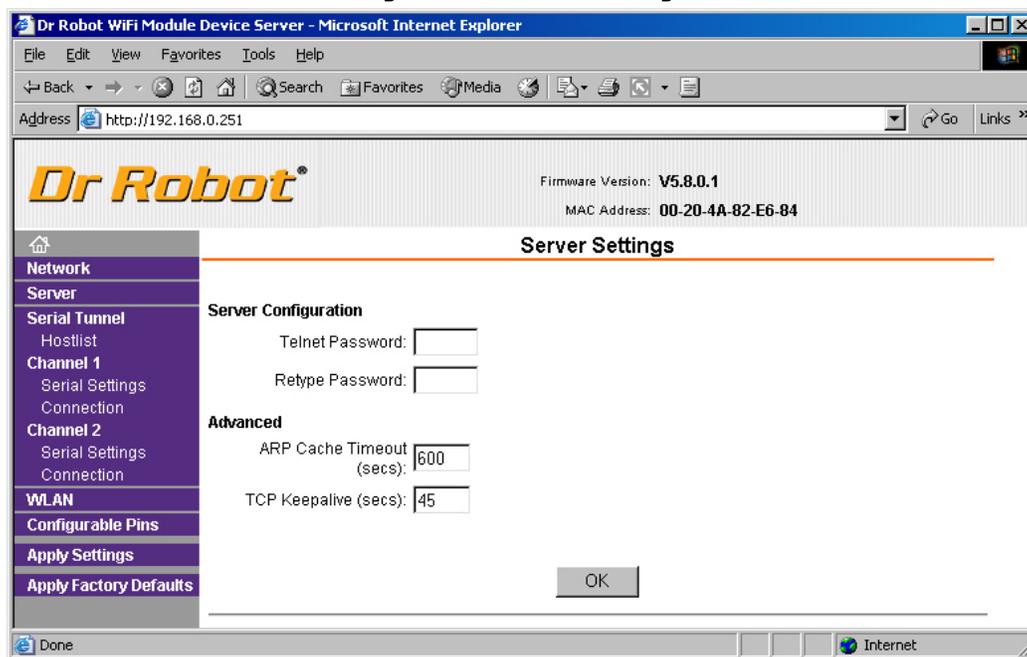
To configure the WFS802g's device server settings:
1. Click **Server** from the main menu.
2. Configure or modify the following fields:

Server Configuration

Telnet Password	Enter the password required for Telnet access.
Retype Password	Re-enter the password required for Telnet access.

Advanced

ARP Cache Timeout	When the unit communicates with another device on the network, it adds an entry into its ARP table. ARP Cache timeout defines the number of seconds (1-600) before it refreshes this table.

TCP Keepalive	TCP Keepalive time defines how many seconds the unit waits during an inactive connection before checking its status. If the unit does not receive a response, it drops that connection. Enter a value between 0 and 60 seconds. 0 disables keepalive.

VI.4.   Host List Configuration

The WFS802g scrolls through the host list until it connects to a device listed in the host list table. After a successful connection, the unit stops trying to connect to any others. If this connection fails, the unit continues to scroll through the table until the next successful connection.

The host list supports a minimum of 1 and a maximum of 12 entries. Each entry contains an IP address and a port number.

Note: *The host list is disabled for Manual and Modem Mode. The unit will not accept a data connection from a remote device when the hostlist option is enabled.*

To configure the WFS802g's host list:
1.   From the main menu, click the **Hostlist** tab.

Figure VI.4 Hostlist Settings
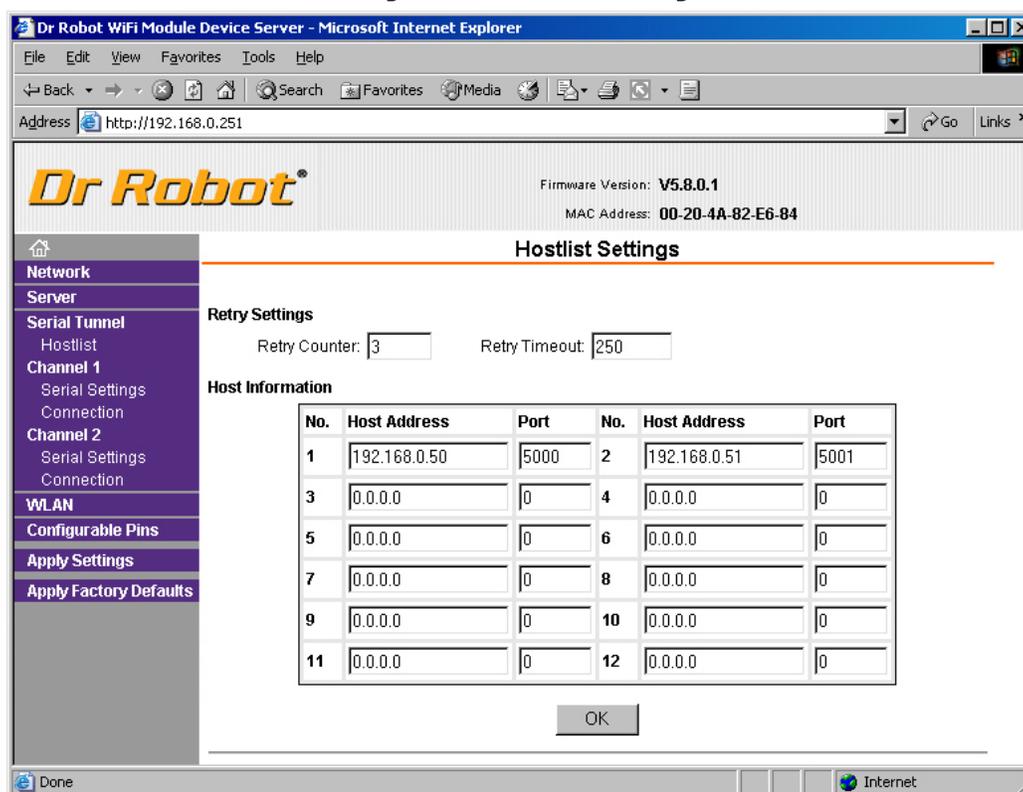
2.   Enter or modify the following fields from the Hostlist Settings window:

Retry Settings

Retry Counter	Enter the value for the number of times the WFS802g should attempt to retry connecting to the host list.
Retry Timeout	Enter the duration (in seconds) the WFS802g should abandon attempting a connection to the host list.

Host Information

Host Address	Enter or modify the host's IP address.

Port	Enter the target port number.

VI.5.   Channel 1 and Channel 2 Configuration

Channel 1 and Channel 2 configurations define how the serial ports respond to network and serial communication.

VI.5.1.   Serial Settings

To configure a channel's serial settings:

1.   From the main menu, click **Serial Settings** for either Channel 1 or Channel 2 to display the Serial Settings page for the selected channel.

Figure VI.5 Channel Serial Settings
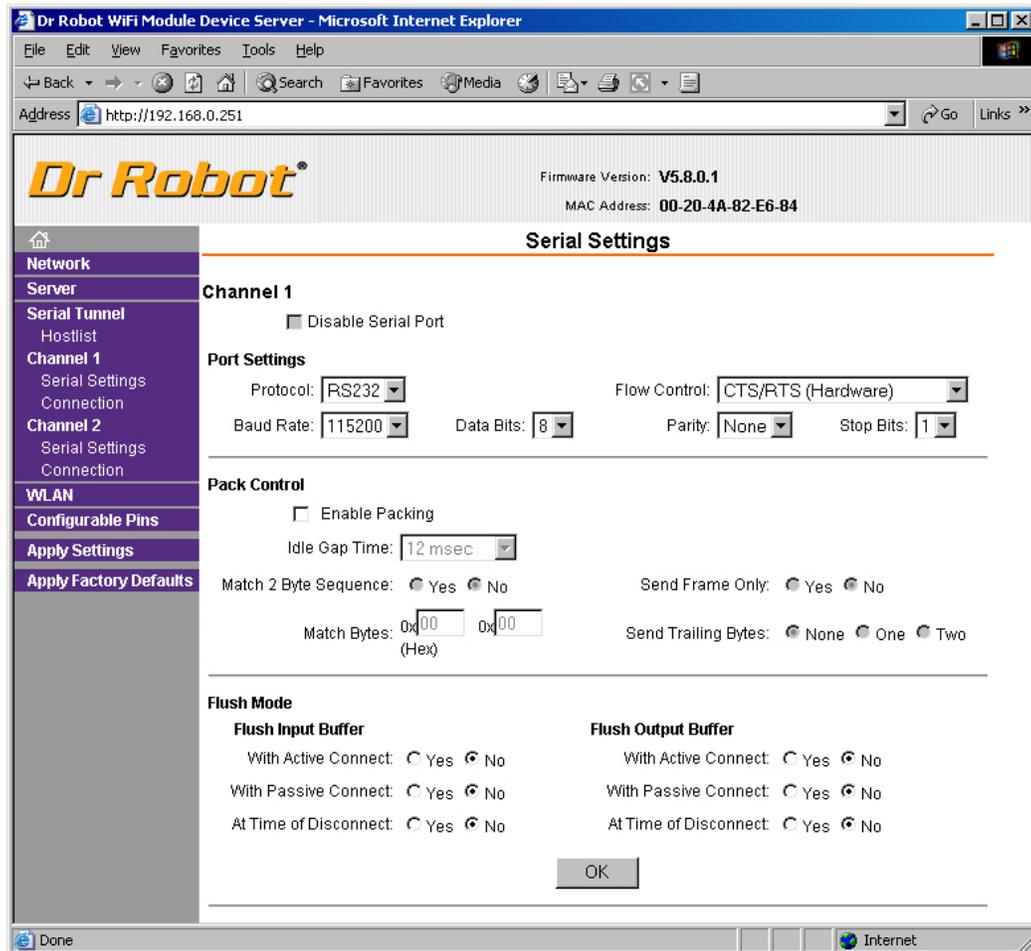
2.   In the available fields, enter the following information:

Channel 1

Disable Serial Port	Available on Channel 1 settings only. When selected, disables communication through the serial port.

Port Settings

Protocol	Select the protocol type from the pull down menu for the selected channel.
Flow Control	Flow control manages data flow between devices in a network to ensure it is processed efficiently. Too much data arriving before a device is prepared to

	manage it causes lost or retransmitted data.
Baud Rate	The unit and attached serial device, such as a modem, must agree on a speed or baud rate to use for the serial connection. Valid baud rates are 300, 600, 1200, 2400, 4800, 9600 (default), 19200, 38400, 57600, 115200, 230400, 460800, or 921600.
Data Bits	Indicates the number of bits in a transmitted data package.
Parity	Checks for the parity bit. The default is **None**.
Stop Bits	The stop bit follows the data and parity bits in serial communication. It indicates the end of transmission.

Port Settings

Enable Packing	Select the checkbox to enable packing on the WFS802g. Two firmware-selectable packing algorithms define how and when packets are sent to the network. The standard algorithm is optimized for applications in which the unit is used in a local environment, allowing for very small delays for single characters, while keeping the packet count low. The alternate packing algorithm minimizes the packet count on the network and is especially useful in applications in a routed Wide Area Network (WAN). Adjusting parameters in this mode can economize the network data stream.
Idle Gap Time	Select the maximum time for inactivity. The default time is 12 milliseconds.
Match 2 Byte Sequence	Use to indicate the end of a series of data to be sent as one group. The sequence must occur sequentially to indicate to the WFS802g end of the data collection.
Match Bytes	Use to indicate the end of a series of data to be sent as one group. Set this value to 00 if specific functions are not needed.
Send Frame Only	After the detection of the byte sequence, indicates whether to send the data frame or the entire buffer. Select True to send only the data frame.
Send Trailing Bytes	Select the number of bytes to send after the end-of-sequence characters.

Flush Input Buffer (Serial to Network)

With Active Connect	Select **Yes** to clear the input buffer with a connection that is initiated from the device to the network.
With Passive Connect	Select **Yes** to clear the input buffer with a connection initiated from the network to the device.
At Time of Disconnect	Select **Yes** to clear the input buffer when the network connection to or from the device is disconnected.

Flush Output Buffer (Network to Serial)

With Active Connect	Select **Yes** to clear the output buffer with a connection that is initiated from the device to the network.
With Passive Connect	Select **Yes** to clear the output buffer with a connection initiated from the network to the device.
At Time of Disconnect	Select **Yes** to clear the output buffer when the network connection to or from the device is disconnected.

VI.5.2. Connection Settings - TCP

To configure a channel's TCP settings:

1.   From the main menu, click **Connection** for either Channel 1 or Channel 2 to display the Connection Settings page for the selected channel.

2.   In the available fields, enter the following information:

Connect Protocol

Protocol	Select **TCP** from the pull down menu.

Figure VI.6 TCP Connection Settings
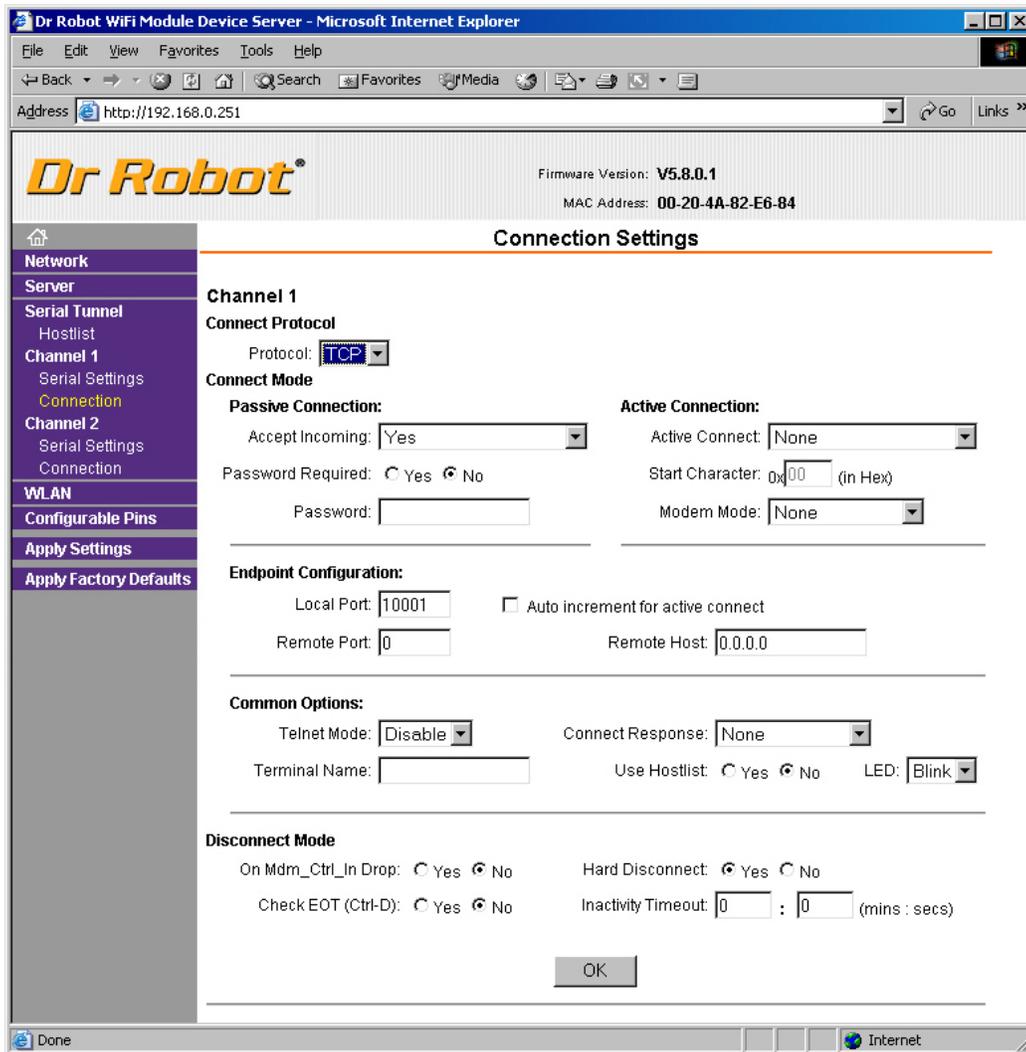
3. In the available fields, enter the following information:

Connect Mode: Passive Connection

Accept Incoming	Select **Yes** to accept incoming connections.
Password Required	Determines whether a password is required for an incoming passive connection. Field is not available when a password is set for Telnet mode.
Password	If Password Required was set to **Yes**, enter the password for passive connections.

Connect Mode: Active Connection Port Settings

Active Connect	Select **None** to disable Active Connect. Otherwise, indicate the connection type from the available list. **Never Accept Incoming** rejects all external connection attempts. **Accept with modem_control_in Active** accepts external connection requests only when the modem_control_in input is asserted. Cannot be used with Modem Mode. **Always Accept** accepts any incoming connection when a connection is not already established.
Start Character	If Active Connect is set to **With Start Character**, enter the start character in

	this field.
Modem Mode	Indicates the on-screen response type when in Modem Mode (if enabled).

Endpoint Configuration

Local Port	Enter the local port number.
Auto increment local port number	Select to auto-increment the local port number for new outgoing connections. The range of auto-incremented port numbers is 50,000 to 59,999 and loops back to the beginning when the maximum range is reached.
Remote Port	Enter the remote port number.
Remote Host	the IP address of the remote device.

Common Options

Telnet Mode	This field is available for configuration only when Active Connection is not set to **None**. Select **Enable** to permit Telnet communication to the WFS802g unit
Terminal Name	This field is available for configuration only when Telnet Mode is set to **Enable**. Use the terminal name for the Telnet terminal type. Enter only one name. When this option is enabled, the unit also reacts to the EOR (end of record) and binary options, which can be used for applications such as terminal emulation to IBM hosts.
Connect Response	A single character is transmitted to the serial port when there is a change in connection state. Default setting is **None**.
Use Hostlist	If this option is set to **True**, the device server scrolls through the host list until it connects to a device listed in the host list table. Once it connects, the unit stops trying to connect to any others. If this connection fails, the unit continues to scroll through the table until it is able to connect to another IP in the host list. The host list is disabled for Manual Mode and for Modem Mode. The unit will not accept a data connection from a remote device when the host list option is enabled.
LED	Select **Blink** for the status LEDs to blink upon connection or **None** for no LED output.

Disconnect Mode

On Mdm_Ctrl_In Drop	Set to **Yes** for the network connection to or from the serial port to drop when modem_control_in transitions from a high state to a low state.
Hard Disconnect	When set to **Yes**, the TCP connection closes even if the remote site does not acknowledge the disconnect request.
With EOT	Choose **Yes** to drop the connection when Ctrl-D or Hex 04 is detected. Both Telnet mode and Disconnect with EOT must be enabled for Disconnect with EOT to function properly. Ctrl D is only detected going from the serial port to the network.
Inactivity Timeout	Use this parameter to set an inactivity timeout. The unit drops the connection if there is no activity on the serial line before the set time expires. Enter time in the format mm:ss, where m is the number of minutes and s is the number of seconds. To disable the inactivity timeout, enter **00:00**.

VI.5.3. Connection Settings - UDP

To configure a channel's UDP settings:

1. From the main menu, click **Connection** for either Channel 1 or Channel 2 to display the Connection Settings page for the selected channel.

2. In the available fields, enter the following information:

Connect Protocol

Protocol	Select **UDP** from the pull down menu.

Figure VI.7 UDP Connection Settings
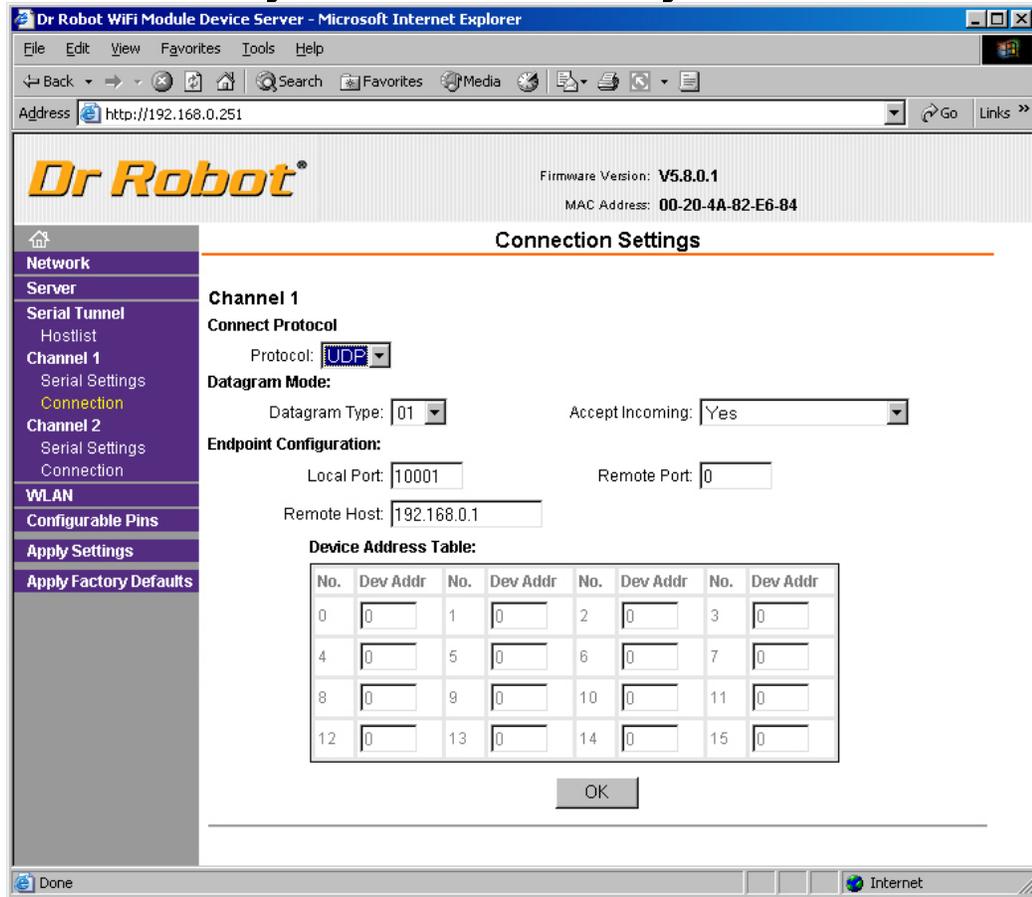
Datagram Mode

Datagram Type	Configures remote IP or network broadcast address and the remote port. Enter **01** for directed or broadcast UDP.
Accept Incoming	Select **Yes** to accept incoming UDP datagrams.

Endpoint Configuration

Local Port	Enter the local port number.
Remote Port	Enter the port number of the remote device.
Remote Host	Enter the IP address of the remote device.
Change Address Table	Field enabled when Datagram Type is set to **FD**. Enter values between 1-255 to identify units on the local network of device servers.

VI.6. WLAN Configuration

Without adequate protection, a wireless LAN is susceptible to access by unauthorized users. As such, WFS802g includes the Wired Equivalent Privacy (WEP) encryption standard as an additional means of security.

To configure the WFS802g's WLAN settings:

1. Select **WLAN** from the main menu to open the WLAN Settings window.

Figure VI.8 WLAN Settings
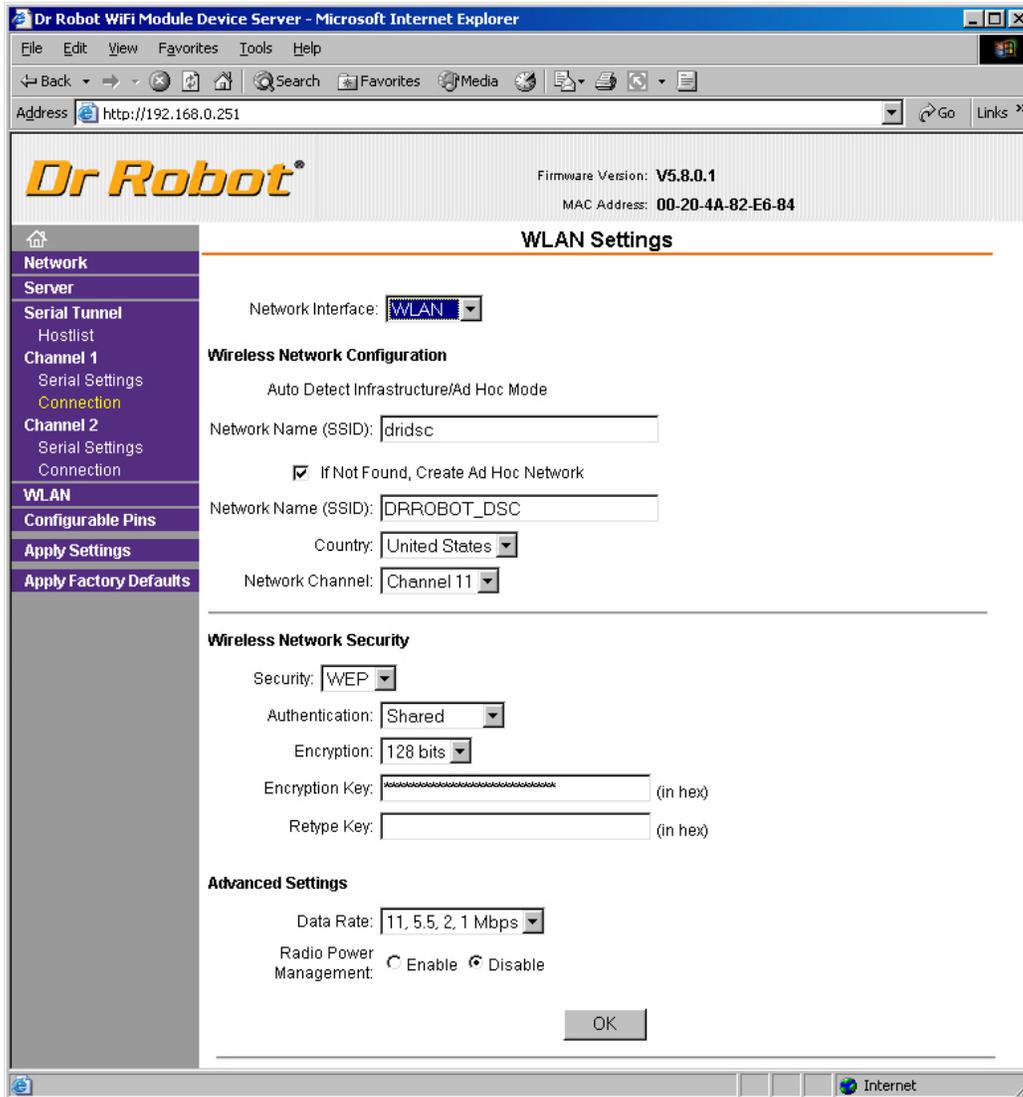
2. Enter or modify the following fields:

Network Interface	Use the pull down menu to select a WLAN interface or an Ethernet interface.
Network Name	Enter the name of the network where the WFS802g is located.

Ad Hoc Settings Ad

Hoc Network Creation	Select the checkbox when using a client (such as a wireless card) to communicate with the WFS802g instead of an Access Point.
Ad Hoc Network Name	Enter the network name for the Ad Hoc network.
Ad Hoc Network Channel	Select from the pull down menu the radio channel for the Ad Hoc network. The default value is **11**.
Ad Hoc Country	From the pull down menu, select a country for the Ad Hoc network. The default is **United States**.

Wireless Network Security

Security	As an additional security measure, enable WEP on the WFS802g. By default, WEP is disabled on WFS802g.

Authentication	Select an authentication scheme (**Open**) from the drop down menu.
Encryption	Select the encryption type from the pull down menu. **128 bits** is the default encryption.
Encryption Key	Field is enabled when **WEP** is selected as the Security type. Enter the **Encryption Key** in hexadecimal value

Advanced Settings

Data Rate	WFS802g permits the control of the transmission rate. Select the data rate (in Mbps) from the pull down menu.
Radio Power Management	Power management reduces the overall power consumption of the WFS802g unit. Selecting **Enable** increases the response time.

VI.7.   OEM Pin Configuration

There are 11 configurable hardware pins on the WFS802g unit. For each pin, configure the pin function, communication direction, and its activity level.

To configure the WFS802g's OEM Configurable Pins:

1.   Click **Configurable Pins** from the main menu to open the Configurable Pins window.

Figure VI.9 Configurable Pins Settings
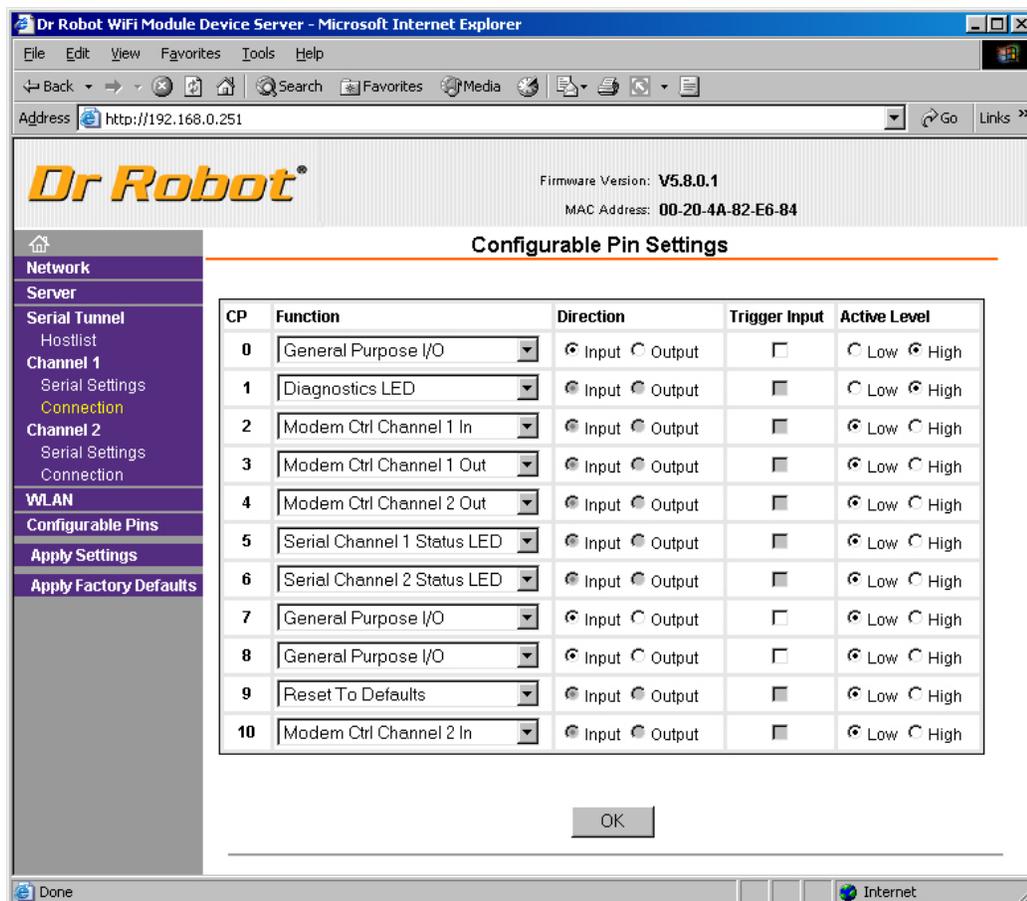
2.   Configure or modify the following fields for each pin:

Function	From the pull down menu, select the purpose of the specified pin.

Active Level	Select the signal active level (**Low** or **High**).
Direction	Select whether the pin inputs or outputs.

VI.8. Updating Settings

Click the **Apply Settings** button from the main menu to save and apply the configuration changes.