



Installation, Operation, and Maintenance

Lifetime Power[®] Wireless Sensor System

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System Overview

The Lifetime Power® Wireless Sensor System provides environmental information to building automation systems (BAS) for HVAC control, lighting control, and other automation functions. The low-power wireless sensors are either 1) battery-free and uniquely powered by radio waves (RF energy) or 2) operate for 25+ years on a pre-installed battery. In either case, the upfront cost of wiring or the future labor and material costs of battery replacement are eliminated. The system consists of three primary objects: wireless sensor nodes, a BAS gateway/repeater, and an optional RF transmitter for power.

Part Numbers

	Lifetime Power® Wireless Sensors	Type
WSN-1001	Wireless Temperature and Humidity Sensor – directional receiver, RF-powered	T/H
WSN-1002	Wireless Temperature and Humidity Sensor – omni-directional receiver, RF-powered	T/H
WSN-1006	Wireless Temperature and Humidity Sensor – directional receiver, 1 internal temp, 1 internal humidity, 4 external ports for RTDs, RF-powered	T/H
WSN-1101	Wireless Temperature and Humidity Sensor – battery-powered with 25+ years operation from pre-installed battery	T/H
	Building Automation System Gateway	
	USB only	
WSG-101-SERIAL	BAS Gateway/Repeater with USB interface only	
	Ethernet interface + USB	
WSG-101-BACNET-IP	BACNET/IP via Ethernet interface and serial output via USB	
WSG-101-BACNET-ETH	BACNET/Ethernet via Ethernet interface and serial output via USB	
WSG-101-MODBUS-TCP	MODBUS TCP via Ethernet interface and serial output via USB	
WSG-101-SNMP	SNMP via Ethernet interface and serial output via USB	
WSG-101-XML	XML via Ethernet interface and serial output via USB	
	RS-485 Interface + USB	
WSG-101-BACNET-MSTP	BACNET/MSTP via RS-485 interface and serial output via USB	
WSN-101-METASYS-N2	METASYS N2 via RS-485 interface and serial output via USB	
WSG-101-MODBUS-RTU	MODBUS RTU via Ethernet interface and serial output via USB	
	FTT-10 Interface + USB	
WSG-101-LON	LonWorks via FTT-10 interface and serial output via USB	
	Powercaster® Transmitters	
TX91501-3W-ID	3W transmitter, 915MHz	
TX91501-1W-ID	1W transmitter, 915MHz	

Wireless Sensor Node

The Lifetime Power[®] Wireless Sensor Node is the battery-free sensor device that collects readings of environmental conditions and transmits that data to an access point/gateway which provides the information to a building automation system (BAS). It is designed to be mounted on a wall similar to other wired or battery-powered sensors. The wireless sensor transmits data when it has sufficient energy and the time between transmissions will be different based on the received signal strength (RSSI), which depends on the mounting location and distance from a power transmitter.



Note – smaller form factors for battery-powered nodes to be available in late 4Q12

Configuring and Associating a Wireless Sensor Node to a BAS Gateway

A wireless sensor node must first be configured and associated to a particular gateway (access point) before data will be received by that gateway. This is a simple procedure that only takes a few seconds per sensor node. The items that are configured are Network ID, Sensor ID, and Communication Channel, and these items are automatically assigned by the gateway.

Installing and Operating a Wireless Sensor Node

The wireless sensor nodes are powered by radio waves in the 915MHz unlicensed ISM band or powered by a battery. Once a sensor is configured it is ready to operate.

Battery-Powered Nodes

The battery-powered nodes will not transmit until they are associated to a gateway, and then they will transmit according to their configured interval.

RF-Powered Nodes

If an RF-powered node is within range of a power transmitter it will automatically operate and transmit data packets which can be received by the BAS gateway to which it was associated. The sensor should be mounted on a wall within range of a power transmitter at a height of about 6-8 feet above the floor to minimize interference from people or other objects. Do NOT place the sensor behind or inside metal objects as the metal will likely block the RF power signal from the power source and the sensor may not operate.

Maintaining the Wireless Sensor Nodes

The wireless sensor nodes are designed to be maintenance-free for their entire service life. Other than configuring the wireless network parameters there are no other user adjustments or calibrations required. If data is no longer being received from a sensor node, one of the following has occurred:

- 1) the RF power source has been moved, repositioned, or an object is blocking the radio signal to the sensor node (does not apply to battery-powered nodes)
- 2) the sensor has failed or otherwise become inoperable and should be replaced,
- 3) the RF power transmitter has failed or otherwise become inoperable and should be replaced (does not apply to battery-powered nodes)

Building Automation System Gateway

Access Point and Repeater

The WSG-101 Building Automation System Gateway is the device that receives data from the wireless sensor nodes and interfaces to a BAS through industry standard protocols. The gateway is also used to configure the sensor nodes prior to deployment. Each gateway supports 4 communication channels, 26 Network IDs, and 100 wireless sensors.

Repeater version

The repeater functionality is only enabled on the WSG-101-SERIAL configuration that does not include the BAS network interface. Repeater functionality is disabled on the version with the BAS interface.



WSG-101 Building Automation System Gateway with Ethernet interface

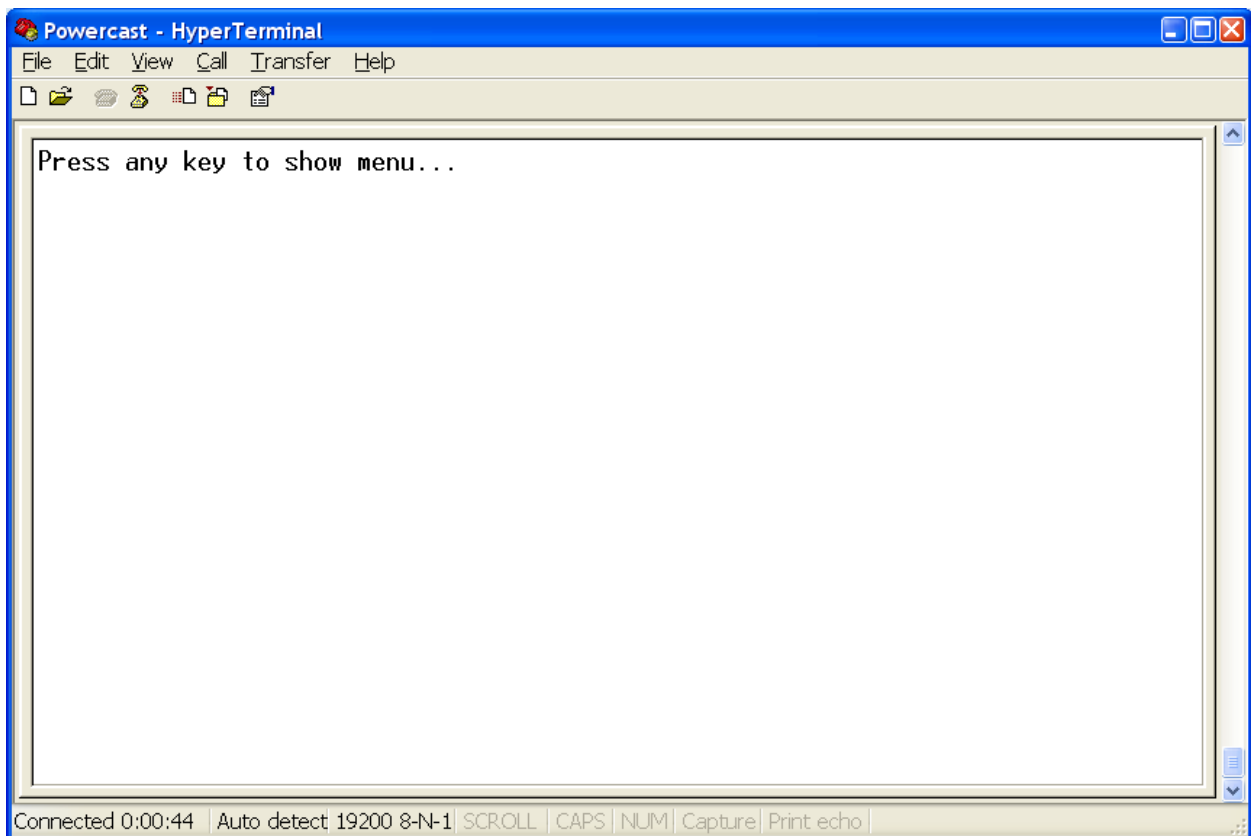
Gateway Configuration

Note - see Appendix A and Appendix B in order to install the USB driver and HyperTerminal. This MUST be completed in order for a PC to communicate to a gateway.

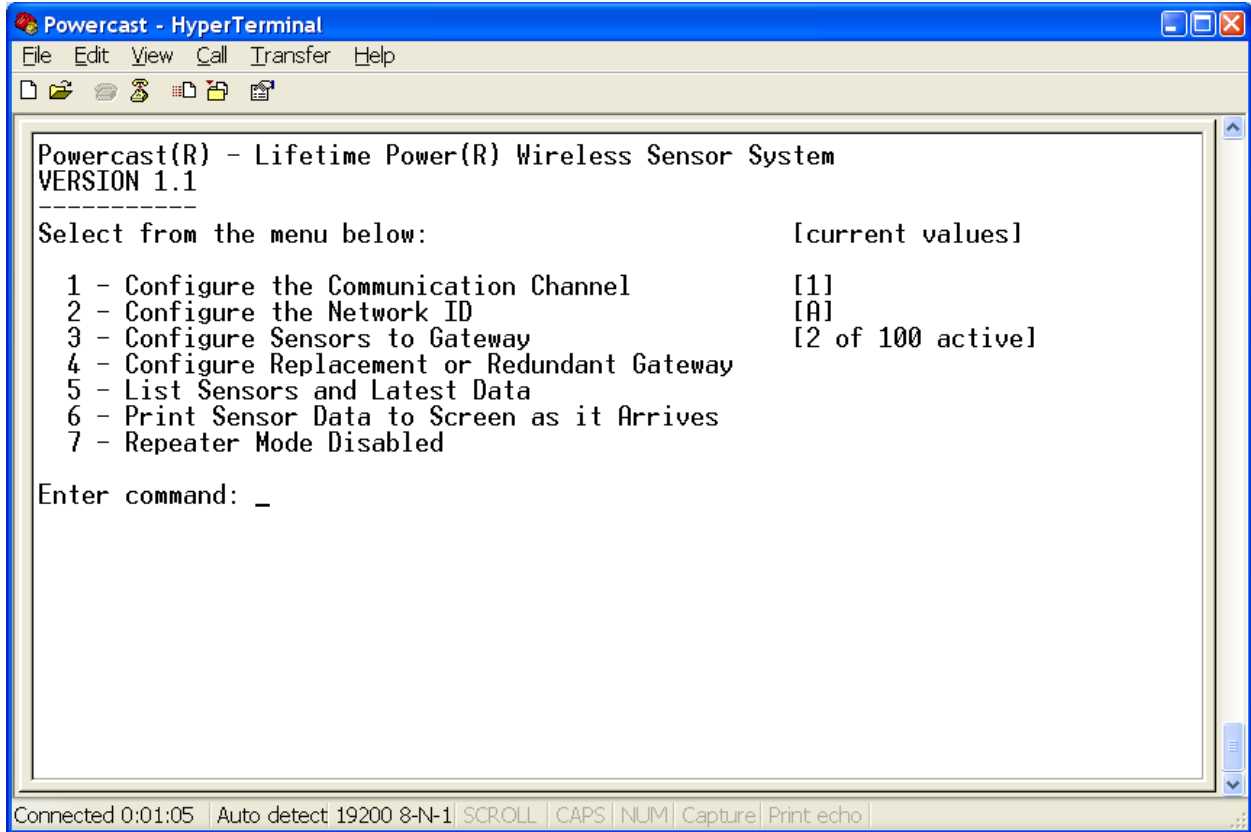
Each WSG-101 BAS gateway is pre-configured with a Network ID and a communication channel. The Network ID can be changed as needed, or to configure a gateway as a redundant node for higher-availability BAS operation. The gateway is configured through two ports as follows:

Parameter	Configuration Port
Network ID	USB port - "PC INTERFACE" There are 26 pre-set values for the Network ID designated by the letters A-Z.
Communication Channel	USB port - "PC INTERFACE" There are 4 communication channels designated by numbers 1-4. (The channels are based on the IEEE 802.15.4 standard.)
Sensor Binding	USB port - "PC INTERFACE" Sensors are configured (associated) to the gateway through a USB cable from the gateway to the sensor node.
Wired Network ID	Ethernet port (models with external RS485 or FTT-10 connector have an internal Ethernet port for configuration)
IP address	Ethernet port (models with external RS485 or FTT-10 connector have an internal Ethernet port for configuration)

When the USB driver has been properly installed and HyperTerminal is properly configured, the message "Press any key to show menu..." will display in the HyperTerminal window.



When any key is pressed the system menu will appear as shown below. The system menu also provides an indication of the Communication Channel, Network ID, and the number of devices configured to the gateway.



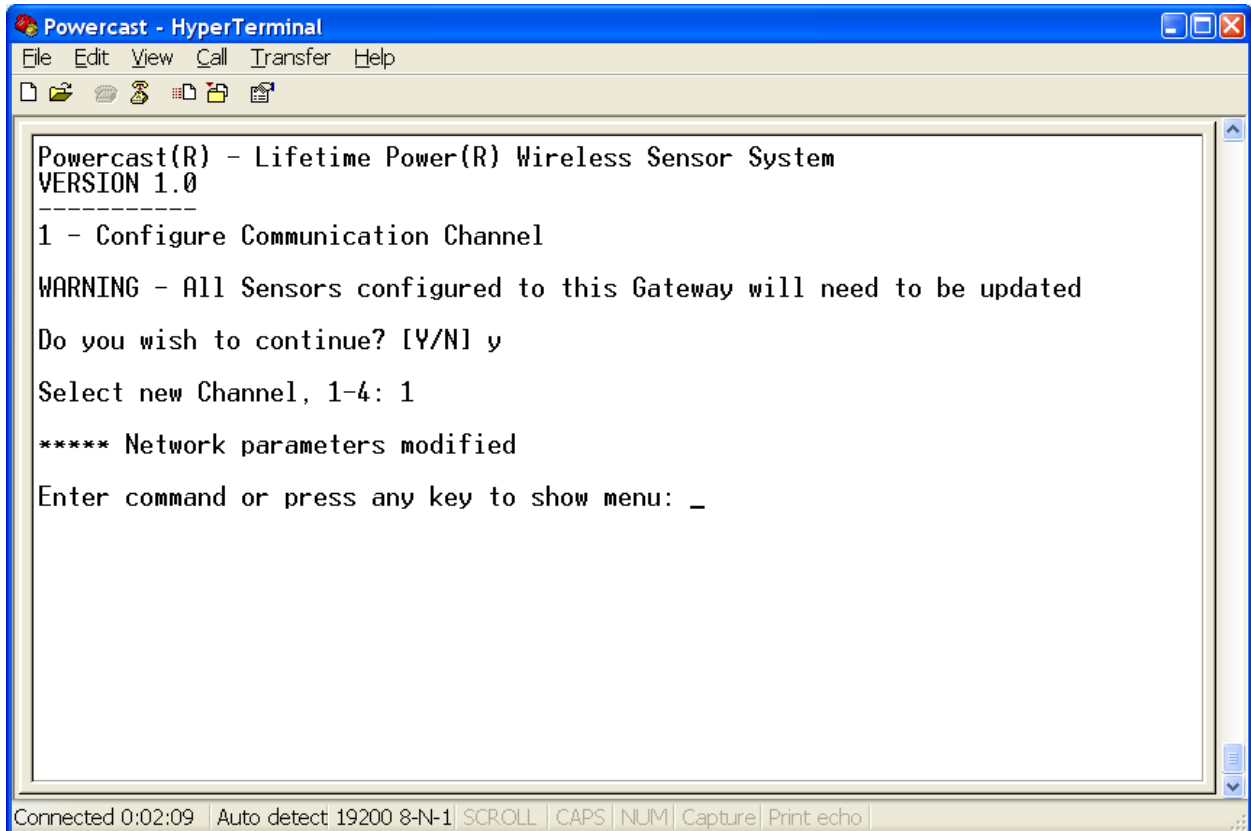
To continue, enter the number shown on the left side of the screen for the desired command.

Note – The wired network parameters are not configured through this menu. See the following manual for configuring the wired BAS interface (e.g. BACnet, Modbus, LonWorks)

<http://www.powercastco.com/PDF/WSG-101-Network-Configuration-Guide.pdf>

Option 1 – Configure the Communication Channel

Menu option 1 is for configuring the Communication Channel. Four communication channels are available from which to choose use. The screen capture below highlights the entries needed to change the communication channel.



```
Powercast - HyperTerminal
File Edit View Call Transfer Help
Powercast(R) - Lifetime Power(R) Wireless Sensor System
VERSION 1.0
-----
1 - Configure Communication Channel
WARNING - All Sensors configured to this Gateway will need to be updated
Do you wish to continue? [Y/N] y
Select new Channel, 1-4: 1
***** Network parameters modified
Enter command or press any key to show menu: _
Connected 0:02:09 | Auto detect 19200 8-N-1 | SCROLL | CAPS | NUM | Capture | Print echo
```

Wireless communication for the system is based on 802.15.4 radios (also used for ZigBee devices). The four channels represent the 802.15.4 channels as follows:

System Channel	802.15.4 channel	Center Frequency
1	26	2480 MHz
2	25	2575 MHz
3	15	2425 MHz
4	20	2450 MHz

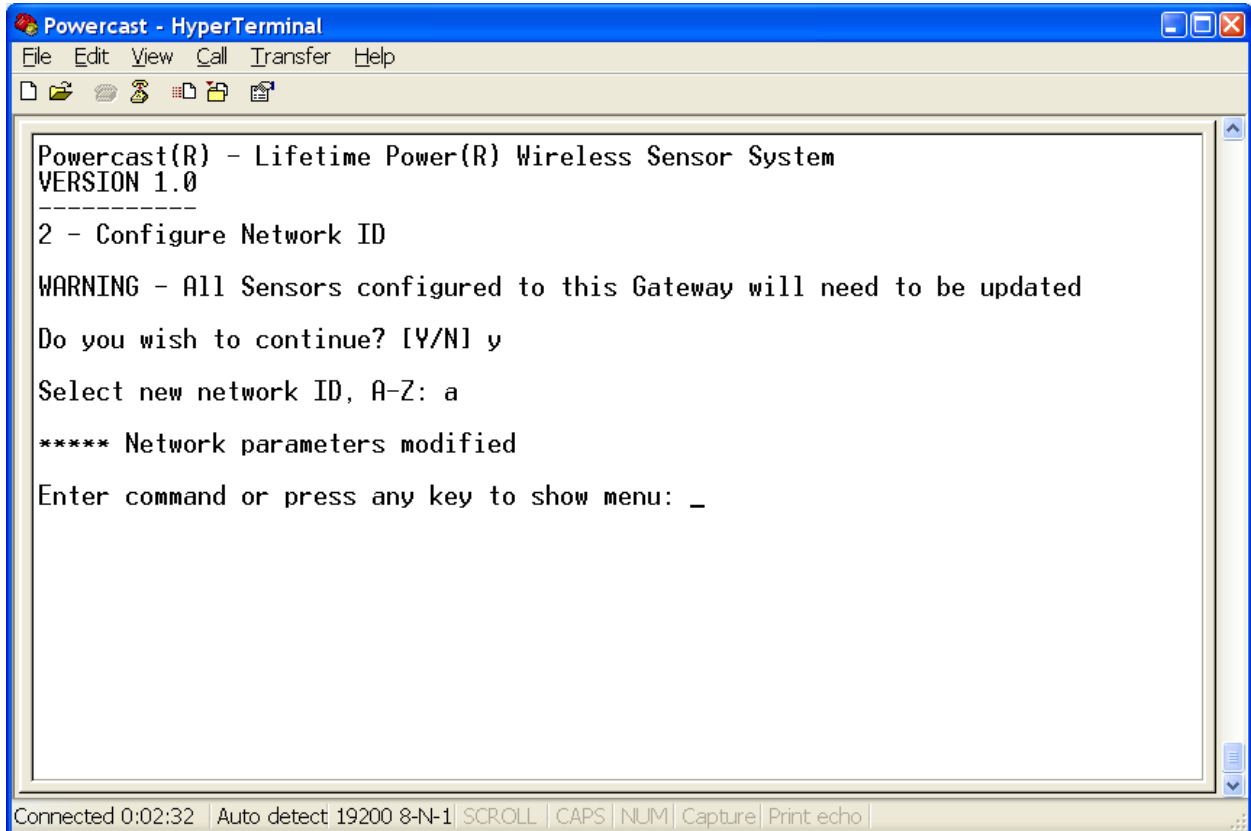
Channels 25 and 26 are outside the range of Wi-Fi channels in North America and will not interfere with or be interfered by Wi-Fi networks. The channel width for 802.15.4 is 2 MHz per channel.

Note: Selecting the Communication Channel should be done before any sensors are configured by the gateway as the gateway assigns the Communication Channel to the sensors through the USB port.

Option 2 – Configure the Network ID

Menu option 2 is for configuring the Network ID. The Network ID is similar to the “SSID” commonly used in Wi-Fi networks, it is a unique identifier so that data packets are received by the proper wireless gateway. There are 26 ID’s available for use in the system, which are represented by the letters A-Z. This allows for easy user selection as well as a range of choices that is large enough to accommodate large-scale deployment of sensors and gateways in close proximity.

Selecting the Network ID can be done in upper or lower case.



```
Powercast(R) - Lifetime Power(R) Wireless Sensor System
VERSION 1.0
-----
2 - Configure Network ID
WARNING - All Sensors configured to this Gateway will need to be updated
Do you wish to continue? [Y/N] y
Select new network ID, A-Z: a
***** Network parameters modified
Enter command or press any key to show menu: _
```

Note: Selecting the Network ID should be done before any sensors are configured by the gateway as the gateway assigns the Network ID to the sensors through the USB port.

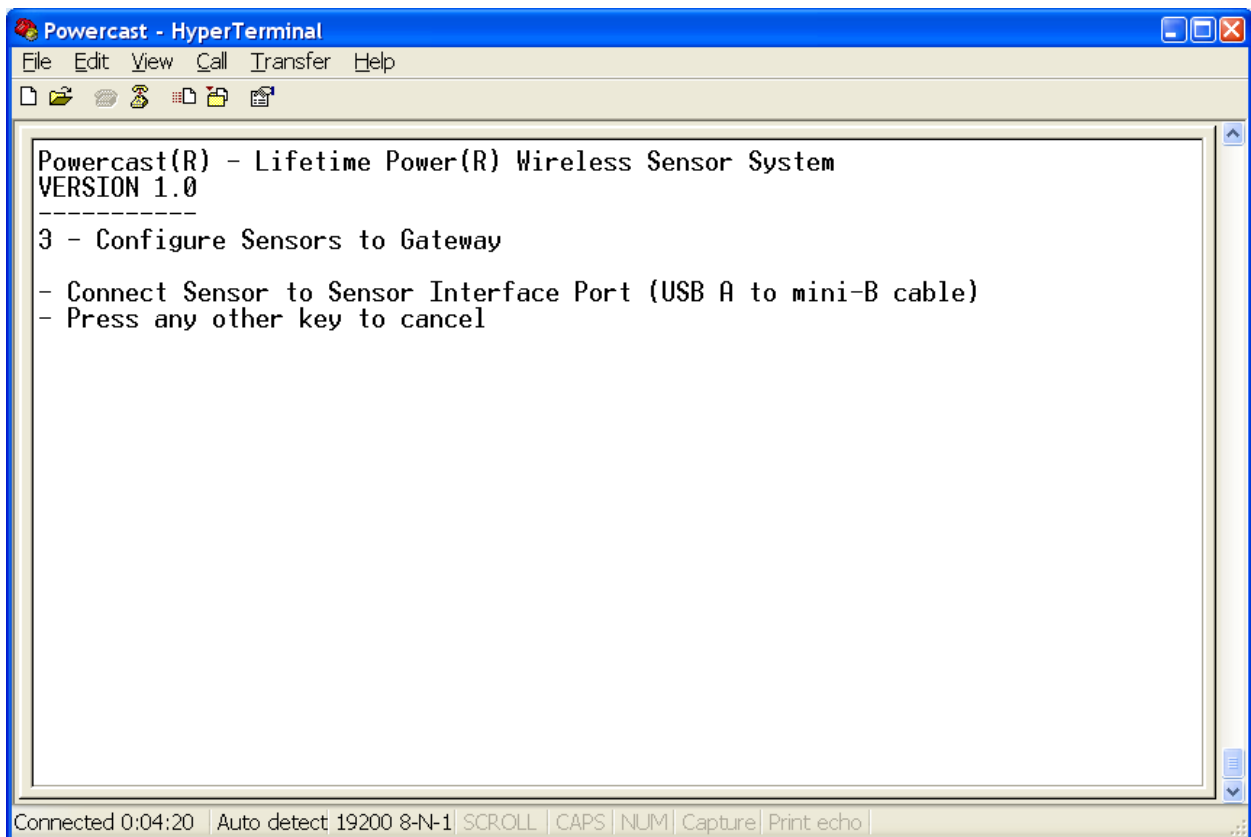
Option 3 – Configure Sensors to Gateway

Menu option 3 is for adding or removing sensors that are configured (associated) to the gateway. Up to 100 sensors can be configured to a gateway and the Node IDs (1-100) are typically assigned automatically by the gateway. Manual configuration is also supported in the rare case that a device has failed and needs to be replaced.

The configuration process assigns the Node ID, Network ID, and Communication Channel to each node. Configuration must be performed before a node is deployed.

A sensor can be connected to the gateway with a USB cable at any time before or after selection menu option 3. When connected, the status light will BLINK continuously until the sensor is configured. The light will be solid when the sensor configuration is complete, and turn off when the sensor is disconnected.

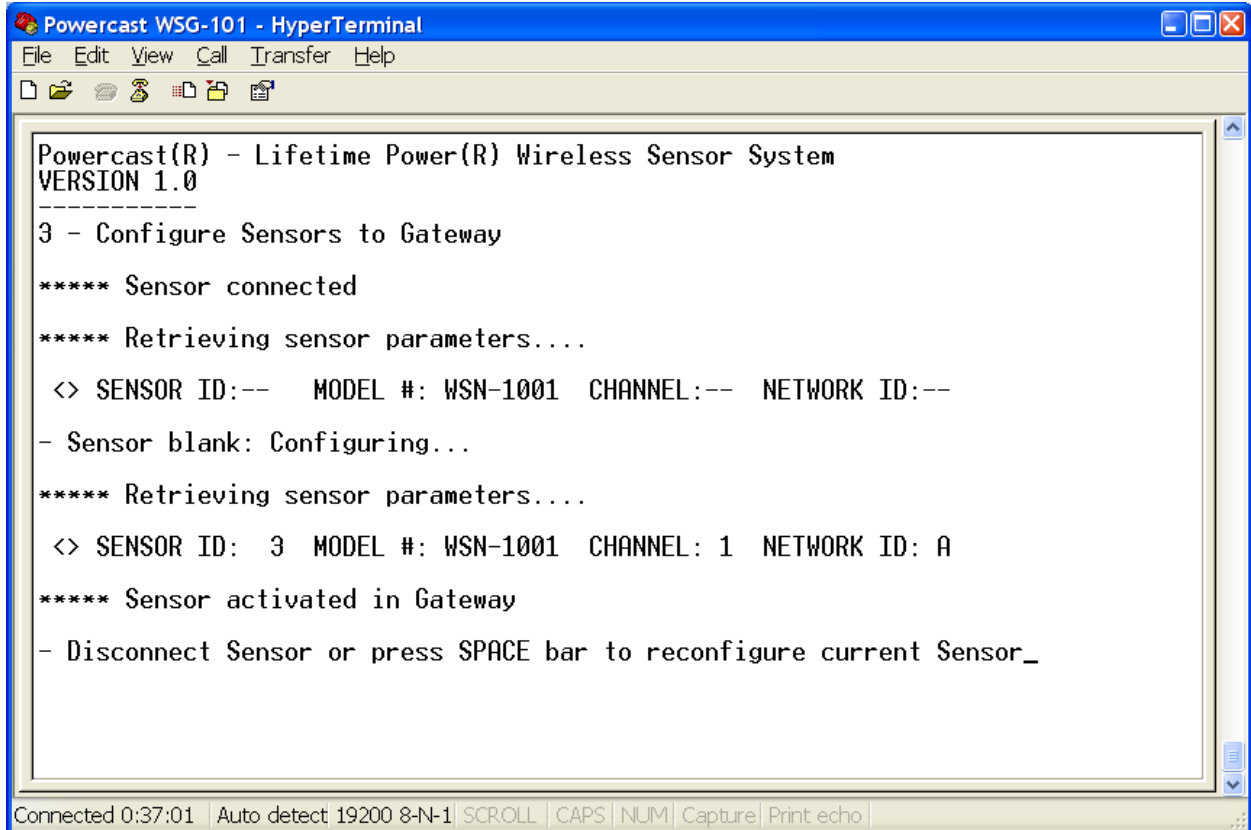
When the message below is displayed, the gateway is waiting for a sensor to be connected via USB cable to the gateway through the gateway port labeled “SENSOR INTERFACE”.



```
Powercast(R) - Lifetime Power(R) Wireless Sensor System
VERSION 1.0
-----
3 - Configure Sensors to Gateway
- Connect Sensor to Sensor Interface Port (USB A to mini-B cable)
- Press any other key to cancel
```

Connected 0:04:20 | Auto detect 19200 8-N-1 | SCROLL | CAPS | NUM | Capture | Print echo

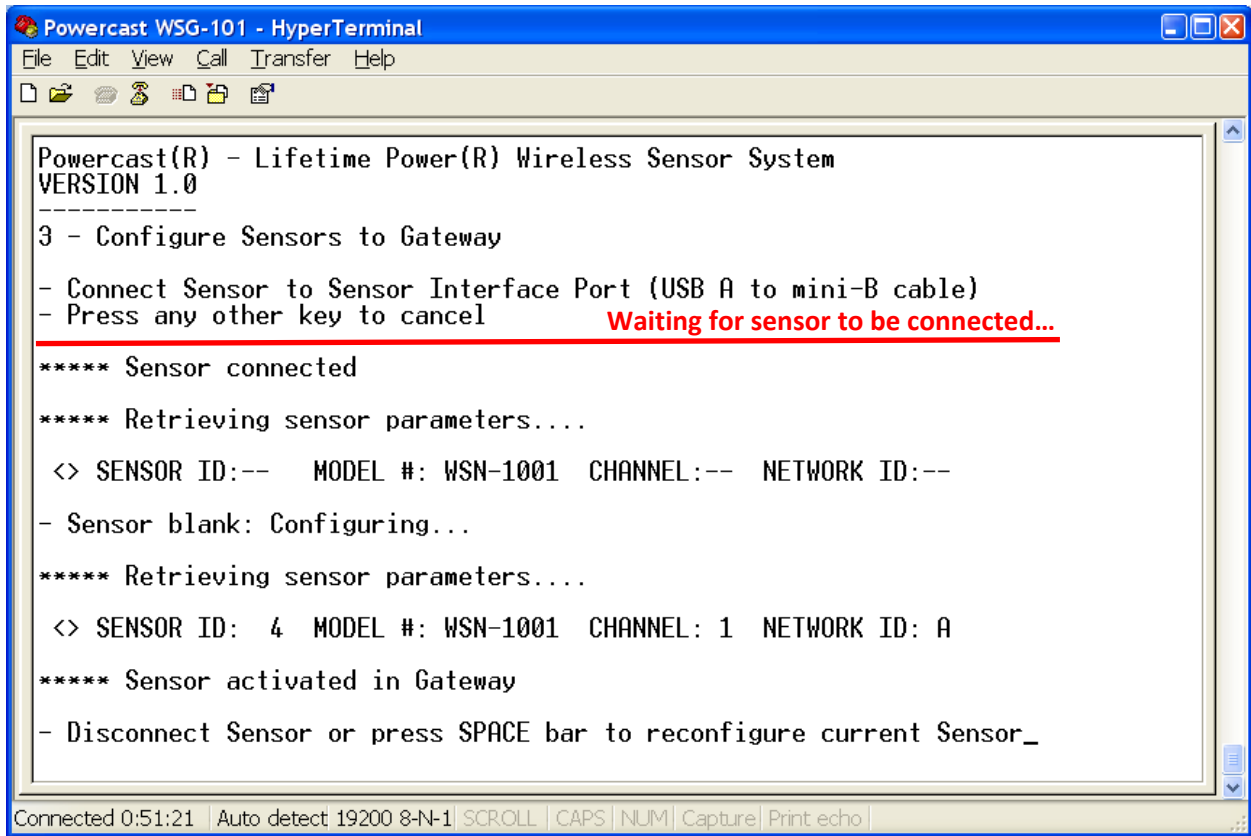
The screen below shows the message when the sensor is connected before selecting menu option 3. When the option is selected, the configuration occurs automatically.



```
Powercast WSG-101 - HyperTerminal
File Edit View Call Transfer Help
Powercast(R) - Lifetime Power(R) Wireless Sensor System
VERSION 1.0
-----
3 - Configure Sensors to Gateway
***** Sensor connected
***** Retrieving sensor parameters....
<> SENSOR ID:-- MODEL #: WSN-1001 CHANNEL:-- NETWORK ID:--
- Sensor blank: Configuring...
***** Retrieving sensor parameters....
<> SENSOR ID: 3 MODEL #: WSN-1001 CHANNEL: 1 NETWORK ID: A
***** Sensor activated in Gateway
- Disconnect Sensor or press SPACE bar to reconfigure current Sensor_

Connected 0:37:01 Auto detect 19200 8-N-1 SCROLL CAPS NUM Capture Print echo
```

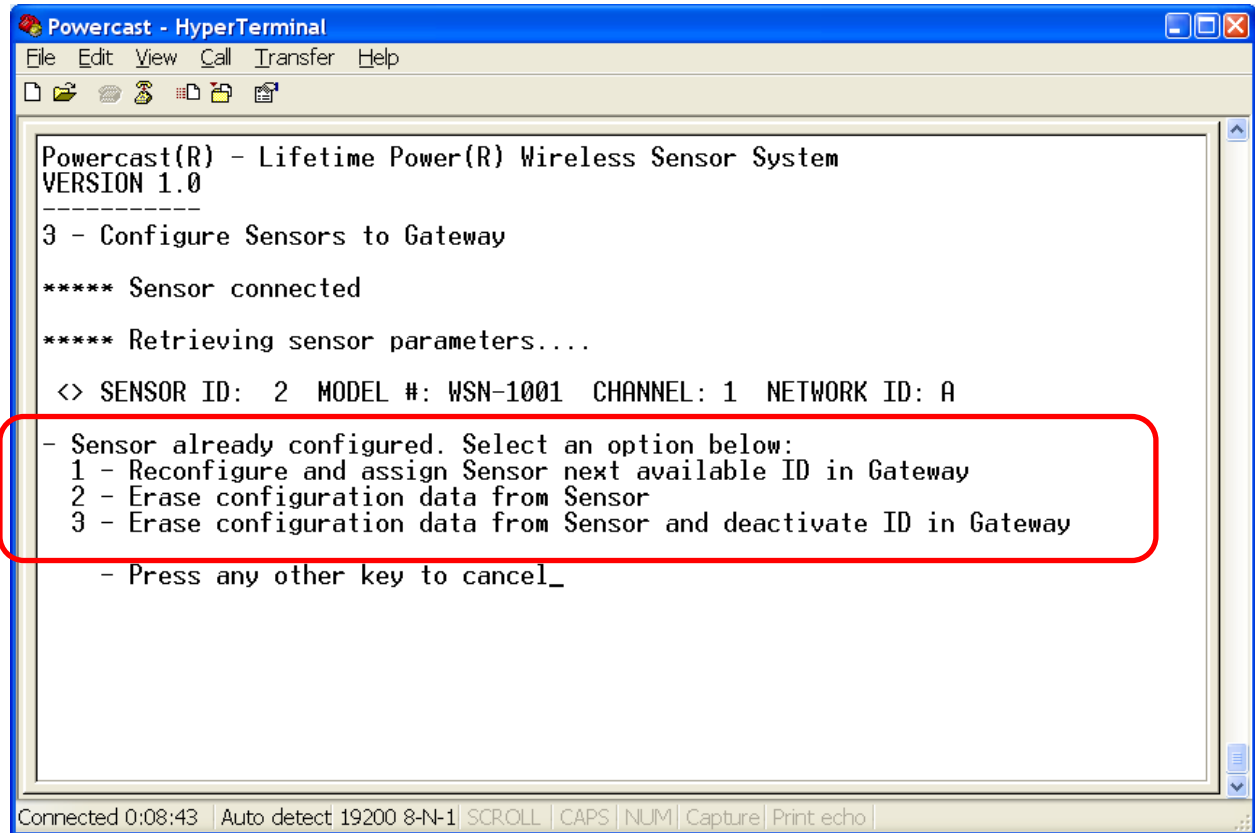
The message below show when menu option 3 is selected before a sensor is connected. The system will wait until a sensor is connected, a key is pressed to cancel, or the operation times out and returns to the main menu.



```
Powercast(R) - Lifetime Power(R) Wireless Sensor System
VERSION 1.0
-----
3 - Configure Sensors to Gateway
- Connect Sensor to Sensor Interface Port (USB A to mini-B cable)
- Press any other key to cancel      Waiting for sensor to be connected...
***** Sensor connected
***** Retrieving sensor parameters....
<> SENSOR ID:--  MODEL #: WSN-1001  CHANNEL:--  NETWORK ID:--
- Sensor blank: Configuring...
***** Retrieving sensor parameters....
<> SENSOR ID: 4  MODEL #: WSN-1001  CHANNEL: 1  NETWORK ID: A
***** Sensor activated in Gateway
- Disconnect Sensor or press SPACE bar to reconfigure current Sensor_

Connected 0:51:21 | Auto detect 19200 8-N-1 | SCROLL | CAPS | NUM | Capture | Print echo
```

The message below is displayed when the connected sensor has a Node ID that is already configured in the gateway. When this occurs three additional options are provided as shown.



```
Powercast(R) - Lifetime Power(R) Wireless Sensor System
VERSION 1.0
-----
3 - Configure Sensors to Gateway

***** Sensor connected

***** Retrieving sensor parameters....

<> SENSOR ID: 2  MODEL #: WSN-1001  CHANNEL: 1  NETWORK ID: A

- Sensor already configured. Select an option below:
  1 - Reconfigure and assign Sensor next available ID in Gateway
  2 - Erase configuration data from Sensor
  3 - Erase configuration data from Sensor and deactivate ID in Gateway

- Press any other key to cancel_

Connected 0:08:43 | Auto detect 19200 8-N-1 | SCROLL | CAPS | NUM | Capture | Print echo
```

If a configuration error occurs due to a faulty connection of the USB port/cable such as electrical noise, the system may display some unknown data but will conclude with a message that the sensor configuration has not been changed.

```
-----  
3 - Configure Sensors to Gateway  
- Connect Sensor to Sensor Interface Port (USB A to mini-B cable)  
- Press any other key to cancel  
  
***** Sensor connected  
***** Retrieving sensor parameters....  
<> SENSOR ID:--  MODEL #: WSN-2002  CHANNEL:--  NETWORK ID:--  
- Sensor blank: Configuring...  
***** Retrieving sensor parameters....  
<> SENSOR ID: 2  MODEL #: WSN- 254  CHANNEL:--  NETWORK ID:  
***** Sensor not changed / Check connection  
***** Sensor disconnected  
- Connect Sensor to Sensor Interface Port (USB A to mini-B cable)  
- Press any other key to cancel
```

Connected 0:40:04 | Auto detect 19200 8-N-1 | SCROLL | CAPS | NUM | Capture | Print echo

4 – Configure Replacement of Redundant Gateway

A unique capability of the gateway is the ability to configure one for redundant operation. The redundant gateway can be on “hot stand-by” for a remote switchover, or on “warm stand-by” where the network cable needs to be moved from the primary to the stand-by unit. The configuration for redundancy is also the same as configuring for replacement in the unlikely event a gateway fails or is damaged. A redundant or replacement gateway can be configured in just a few minutes.

Note – the descriptions below only show how to configure the gateway for the wireless network parameters and wireless sensors. The wired network parameters need to be configured through the “Remote User Interface” software utility from FieldServer Technologies. Wired configuration parameters are recommended as follows:

Implementation	Wired Network Address	IP address
Hot Stand-By	Different than primary	Different than primary
Warm Stand-By	Same as primary	Same as primary

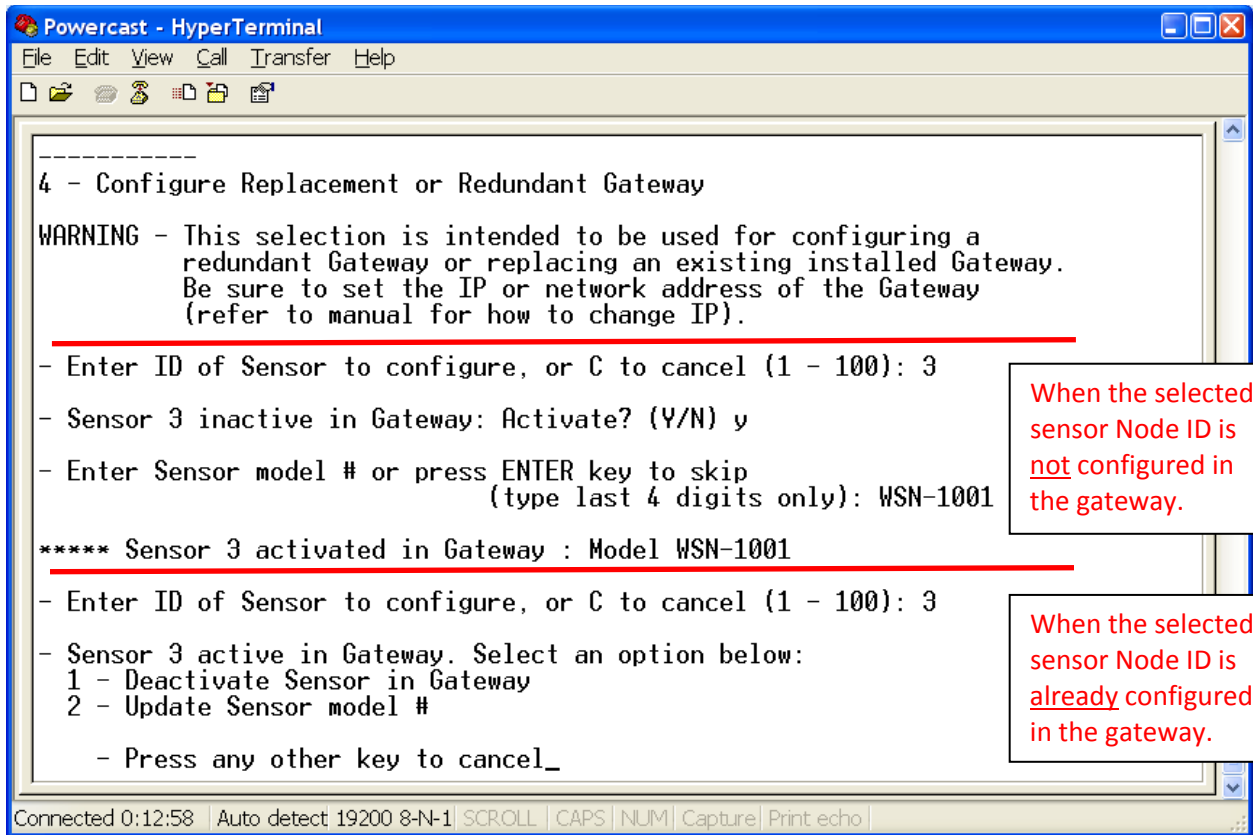
Noted – When using warm stand-by mode both gateways should not be connected to the wired network at the same time.

The process to configure a replacement or redundant gateway involves simply entering the sensor Node IDs (1-100) that are to be active on the gateway and, optionally, the sensor model number.

Note – After the primary gateway is configured with the desired sensors, it is recommended to capture the configuration data by using Option 5 to list the sensors on the screen. Using either the “Print Screen” button or copying/pasting the data from the screen into a text file can be used.

Note – the operation described here does not configure the wired network parameters of the replacement / redundant gateway, but only the wireless sensors that are to be configured to it. See the following manual for configuring the wired BAS interface (e.g. BACnet, Modbus, LonWorks)

<http://www.powercastco.com/PDF/WSG-101-Network-Configuration-Guide.pdf>



5 – List Sensors and Latest Data

Menu option 5 displays the list of sensors configured to the gateway, including the sensor model and data from the latest packet received.

The model type of the sensor is displayed under the heading “WSN-”.

```
Powercast(R) - Lifetime Power(R) Wireless Sensor System
VERSION 1.0
-----
5 - List Sensors and Latest Data

    dT - Seconds between last two received data packets
    RSSI - Received Signal Strength Indicator (1=low power - 5=high power)
    TXID - Transmitter ID (0 = read error, 255 = timeout)
    S1-8 - Sensor data (units vary by sensor type)

SENS  dT  RSSI  TXID  WSN-   S1    S2    S3    S4    S5    S6    S7    S8
  1    4    5    33  1001  41.4  71    ----  ----  ----  ----  ----  ----
  2   13    5   255  1001  51.4  49    ----  ----  ----  ----  ----  ----

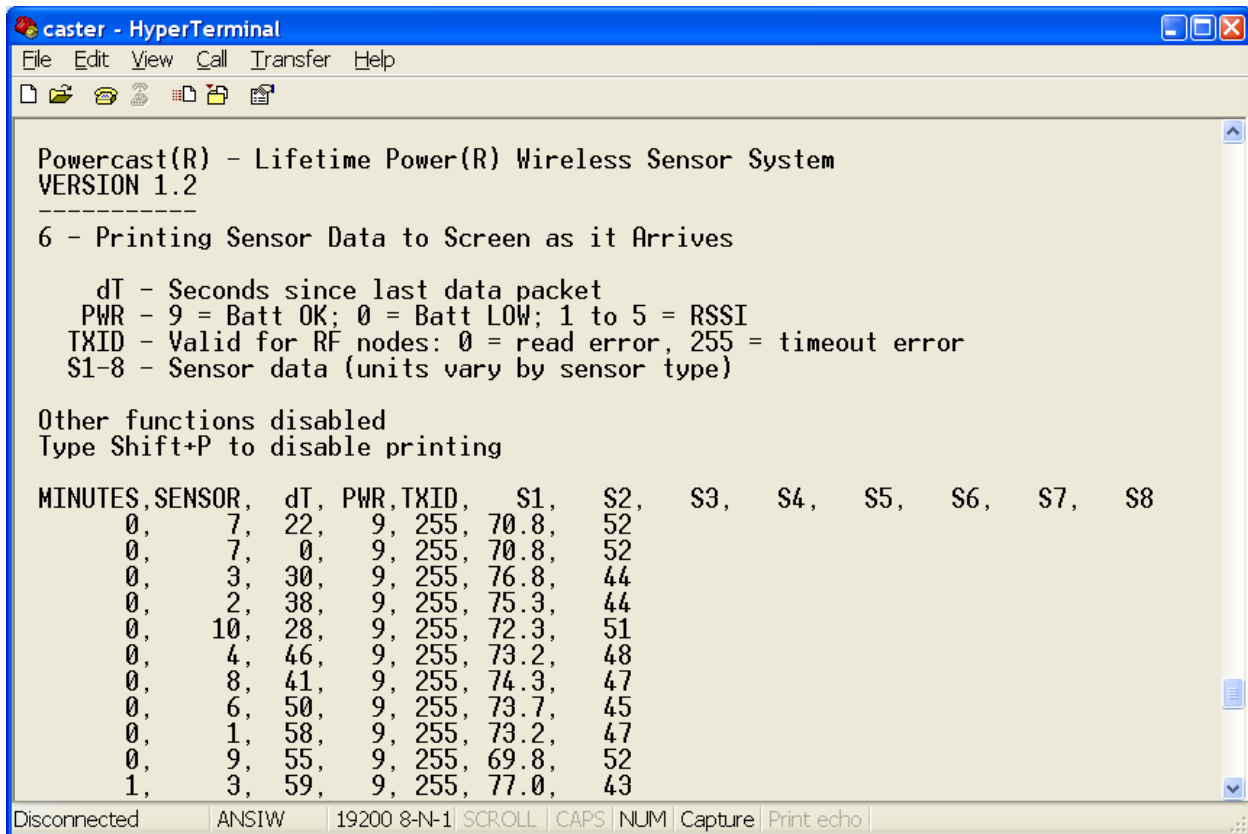
List Complete

Enter command or press any key to show menu:
```

Note – if the model number is not entered during manual configuration of the gateway, the model number of the sensor will appear as “N/A” meaning “not available.” This does not impact the operation of the system in any way with regard to the BAS interface (e.g. BACnet, Modbus, LonWorks).

6 – Print Sensor Data to Screen

Menu option 6 displays the incoming sensor data on the screen and allows for capturing this data to a text file (data logging) through HyperTerminal, another terminal emulator program, or a custom-designed application. When this mode is enabled it will continue until terminated by entering **Shift+P**.



```
Powercast(R) - Lifetime Power(R) Wireless Sensor System
VERSION 1.2
-----
6 - Printing Sensor Data to Screen as it Arrives

  dT - Seconds since last data packet
  PWR - 9 = Batt OK; 0 = Batt LOW; 1 to 5 = RSSI
  TXID - Valid for RF nodes: 0 = read error, 255 = timeout error
  S1-8 - Sensor data (units vary by sensor type)

Other functions disabled
Type Shift+P to disable printing

MINUTES, SENSOR, dT, PWR, TXID, S1, S2, S3, S4, S5, S6, S7, S8
0, 7, 22, 9, 255, 70.8, 52
0, 7, 0, 9, 255, 70.8, 52
0, 3, 30, 9, 255, 76.8, 44
0, 2, 38, 9, 255, 75.3, 44
0, 10, 28, 9, 255, 72.3, 51
0, 4, 46, 9, 255, 73.2, 48
0, 8, 41, 9, 255, 74.3, 47
0, 6, 50, 9, 255, 73.7, 45
0, 1, 58, 9, 255, 73.2, 47
0, 9, 55, 9, 255, 69.8, 52
1, 3, 59, 9, 255, 77.0, 43

Disconnected ANSI W 19200 8-N-1 SCROLL CAPS NUM Capture Print echo
```

Note – the header information and oldest data will scroll off the top of the screen as new information is added to the bottom.

Note – in firmware prior to version 1.2 the column for PWR was previously labeled RSSI (values 1-5)
0 = Battery LOW
9 = Battery OK
1 to 5 = received signal strength (RSSI) from RF power source (1 = low, 5 = high)

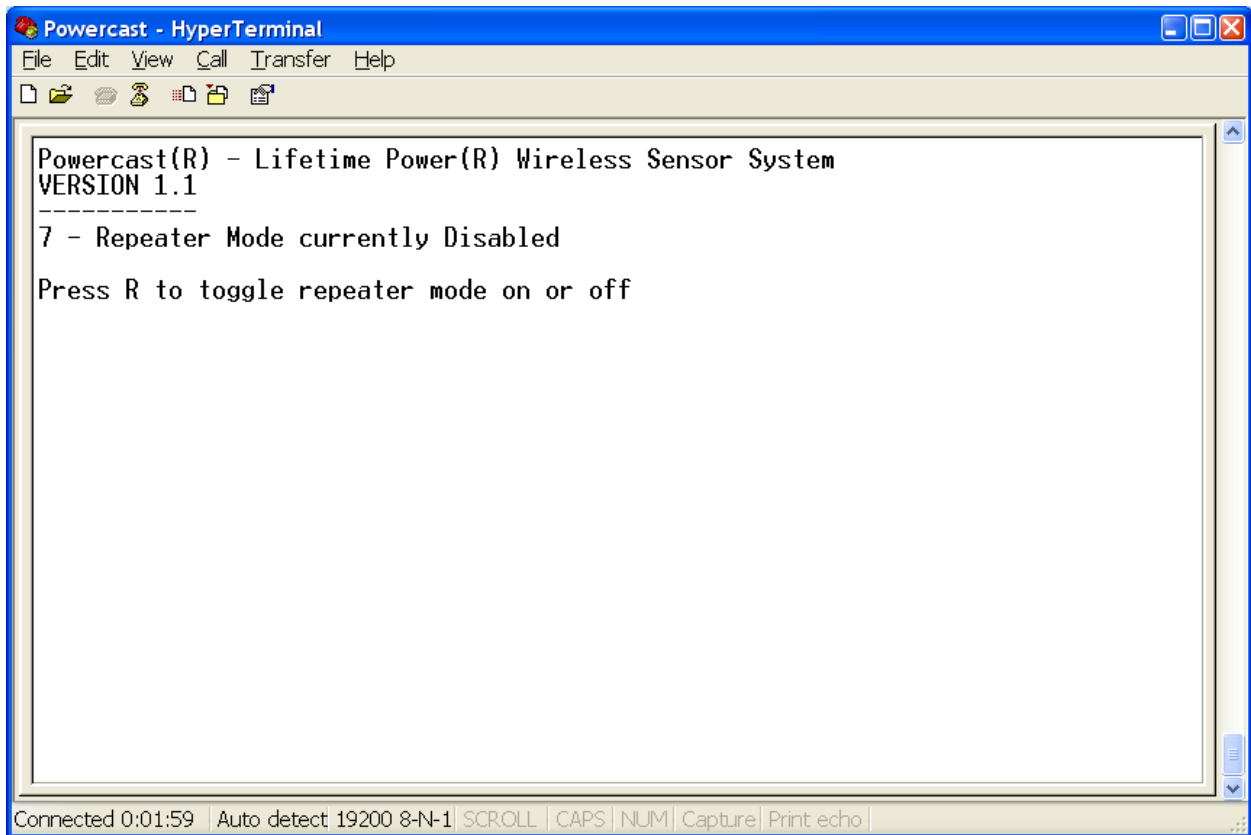
Note – The TXID field is not valid for battery-powered nodes.

7 – Repeater Mode

Repeater mode allows the **WSG-101-SERIAL** device to function as a repeater for extended range. Multiple repeaters can be used with a single BAS gateway and allow for a 1-hop extension of data from the wireless sensors. The repeaters do not form or function as mesh nodes, they simply repeat data that arrives on the same Communication Channel and uses the same Network ID for which they are configured. Repeaters will not repeat data from other repeaters and the gateway and repeaters will not display repeated data from the same sensor node.

Note - Menu option 7 for configuring repeater mode is not available on WSG-101 models equipped with a BAS network interface, it is only available on the WSG-101-SERIAL model. Repeater mode is not available on firmware version 1.0.

Proper use of the WSG-101 as a repeater requires the use of the same Communication Channel and Network ID as is used for the gateway. These parameters can be selection through menu options 1 and 2 as listed earlier in this guide. The repeater should be located within range of the gateway, and a range of 80-100 feet is recommended for most environments. Some environments may require short distance.

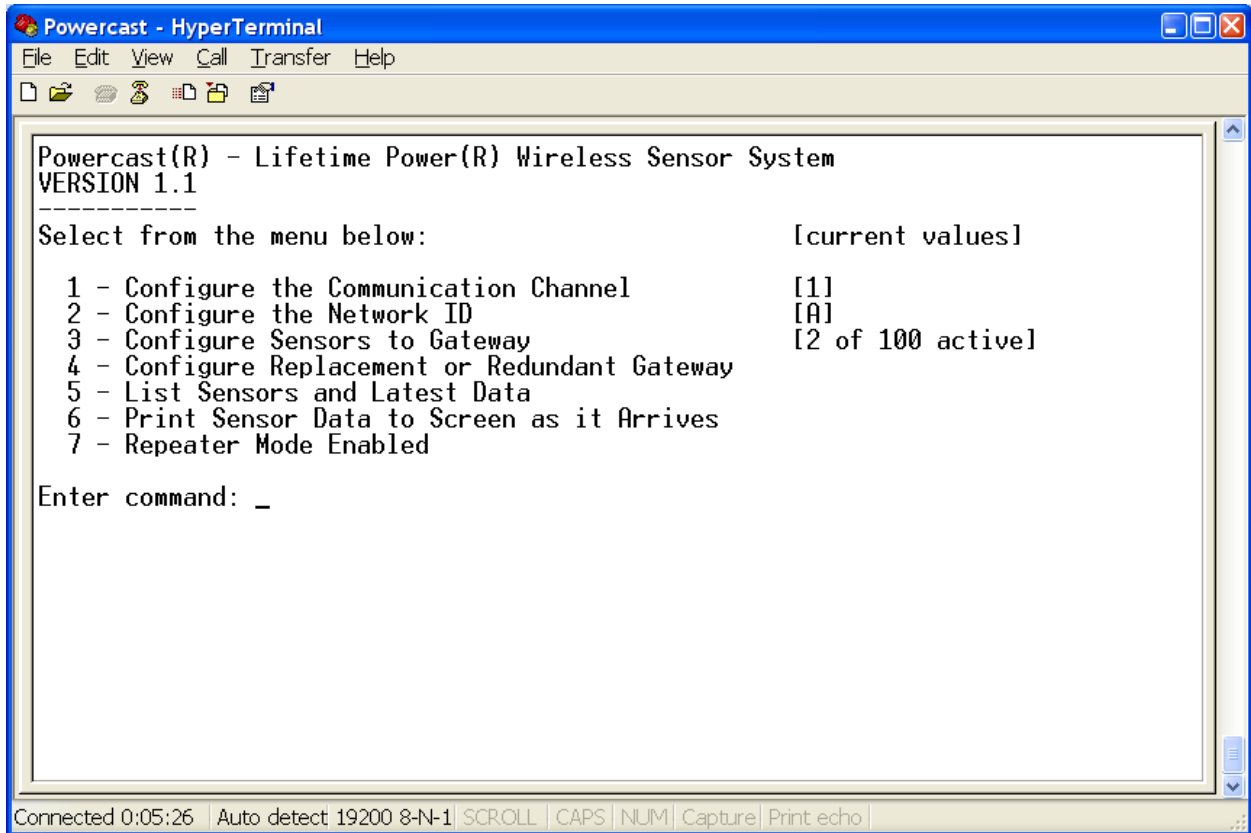


```
Powercast(R) - Lifetime Power(R) Wireless Sensor System
VERSION 1.1
-----
7 - Repeater Mode currently Disabled
Press R to toggle repeater mode on or off

Connected 0:01:59 | Auto detect 19200 8-N-1 | SCROLL | CAPS | NUM | Capture | Print echo
```

Pressing the “R” key will toggle repeater mode on or off.

When the repeater function is active, the menu item 7 will be updated to display “Repeater Mode Enabled” as show below.



Installing and Operating a Gateway

The WSG-101 gateway has integrated mounting flanges and can be mounted to surfaces such as wood or drywall with appropriate screws. Avoid mounting the gateway directly to a metal surface as this can affect wireless reception. If mounting on a metal surface is the only option, it is recommended to insert non-metallic material of at least 1/4" between the gateway and metal surface to create a stand-off distance.

The gateway can be powered by 24VAC or 24VDC.

Data Elements and Mapping

Data from the sensors is mapped as follows in the gateway.

Device Part Number	Type	PWR	S1	S2	S3	S4	S5	S6	S7	S8
WSN-1001	T/H	1-5	T	H	-	-	-	-	-	-
WSN-1002	T/H	1-5	T	H	-	-	-	-	-	-
WSN-1003	Light	1-5	L	-	-	-	-	-	-	-
WSN-1004	Light	1-5	L	-	-	-	-	-	-	-
WSN-1005	External	1-5	T (int)	H (int)	T (ext1)	T (ext2)	T (ext3)	T (ext4)	-	-
WSN-1006	External	1-5	T (int)	H (int)	T (ext1)	T (ext2)	T (ext3)	T (ext4)	-	-
WSN-1101	T/H	0,9	T	H	-	-	-	-	-	-

T =Temperature, H=Humidity, L=Lux,

PWR = received power signal strength (1-5) for RF-powered nodes (WSN-10XX)

PWR = battery condition for battery-powered nodes (0 = LOW, 9 = OK) (WSN-11XX)

Power Transmitter

The source of power for the RF-powered wireless sensor nodes (WSN-10XX devices) is the Powercast TX91501 transmitter. This power transmitter can provide power for more than one sensor node limited only the practical number of sensors that can be deployed within the range.

Power	5VDC
Output	3W or 1W EIRP, 915MHz
Range	Depends on the transmitter power and distance from the transmitter.
Signal Pattern	The radio signals is transmitted from the face of the transmitter in a directional, 60-degree beam pattern for both up-down and left-right.
Data	Factory configured transmitter ID (not user-adjustable)
Certification	FCC Part 15, Industry Canada
LED Indicator	Green (operating normally), RED (not transmitting, object too close)

See Datasheet for complete details about Powercast's TX91501 transmitter

<http://www.powercastco.com/PDF/TX91501-manual.pdf>

Installing and Operating the Power Transmitter

The transmitter is designed to be wall mounted and has multiple holes for use with mounting brackets. There are no user controls and the transmitter will operate continuously when power is applied

It is recommended that the transmitter be mounted on a wall at a distance of 7 - 9 feet from the floor. Mounting at lower levels can result in signal interference or attenuation from people or other objects. Either of the 5VDC jacks can be used to connect the AC/DC converter.

The transmitter does not receive data from any devices. External devices, such as timers and wireless switches, can be used for automated ON/OFF control of the transmitter.

Deploying a Power Network

More than one transmitter can be deployed to create a wireless power network. The power transmitters do not communicate with each other, but radio signals (if in range) from more than one transmitter can be received by a wireless sensor device. These signals are additive and the amount of received power is greater than if a single power transmitter were operating. For maximum performance in deploying a power network, the transmitters should be positioned around the perimeter of an area with the signals pointed inward in the desired coverage area.

Sensor Installation

The sensors should be mounted vertically.

RF-Powered Nodes

When selecting a receiver location, avoid the following:

- Locations that are outside the operating temperature and humidity range
- Metal barriers between the gateway/repeater and the sensor (for example, plastered walls with metal lath or metal roof decks)
- Thick, solid concrete walls between the gateway/repeater and the sensor
- Placing the either the sensors or gateway/repeater inside metal enclosures

Range values are estimated transmission distances, actual distance is job specific and must be determined during site evaluation. Placement of the sensors, gateway/repeater and power transmitter is critical to proper system operation. In most general office space installations, distance is not the limiting factor for proper signal quality. It is affected more by walls, barriers, furnishings and other objects.

Appendix A

Specifications

WSN-1000 Series Sensor

Power	915MHz radio waves
Wireless Communications	2.4GHz, 802.15.4, transmit-only
Power Range	Approximately 60+ feet line of sight from a 3W transmitter (TX91501-3W-ID)
Receiving Signal Pattern	The sensor node has a receiving pattern of about 120-degrees from the face of the transmitter.
Transmitted Data Range	Approximately 100 feet from an access point, depending on obstacles.

WSG-101 BAS Gateway

Power	24VAC or 24VDC
Wireless Communications	2.4GHz, 802.15.4, internal antenna, receive-only. Internal jumper for channel selection.
Communication Channels	4 user selectable Communication Channels
Network Interface	Several options are available: USB only, Ethernet, RS-485, or FTT-10, and multiple protocols are available.
Network ID	26 user selectable Network IDs
Wireless Sensors	100 maximum
Sensor points	800 maximum

Appendix B

Installing the USB Driver for the WSG-101 BAS Gateway

A USB driver file is required for the WSG-101 BAS Gateway to communicate with a PC for configuration and data output. The driver is located at the following link:

[insert link]

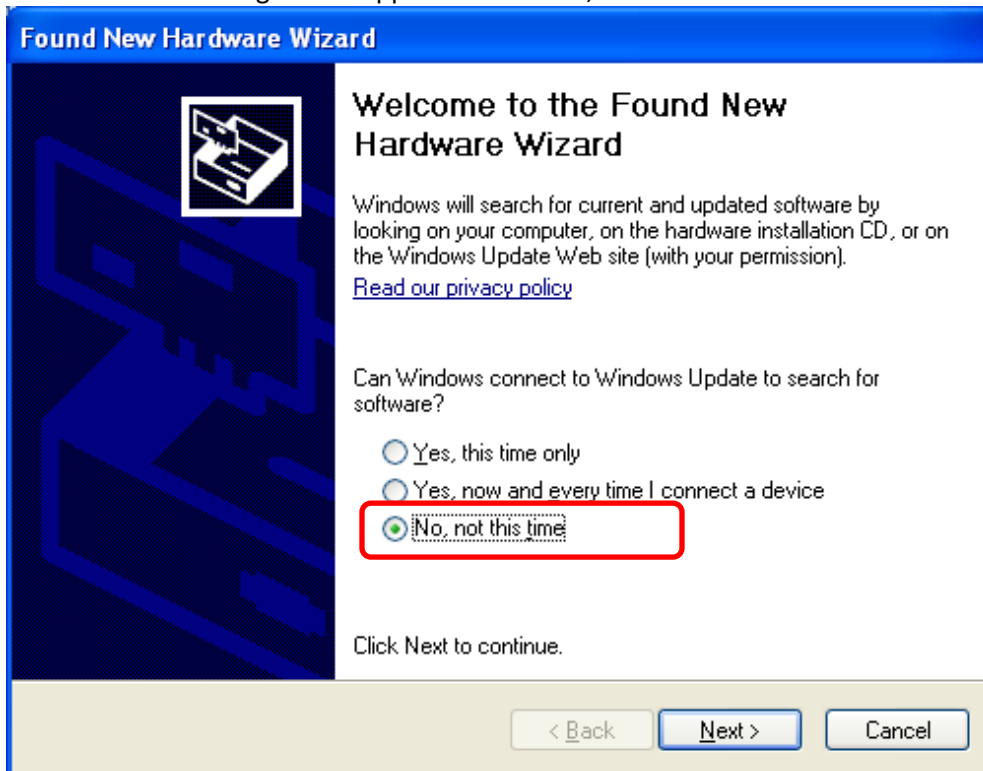
The file is also found on the following page:

<http://www.powercastco.com/resources/>

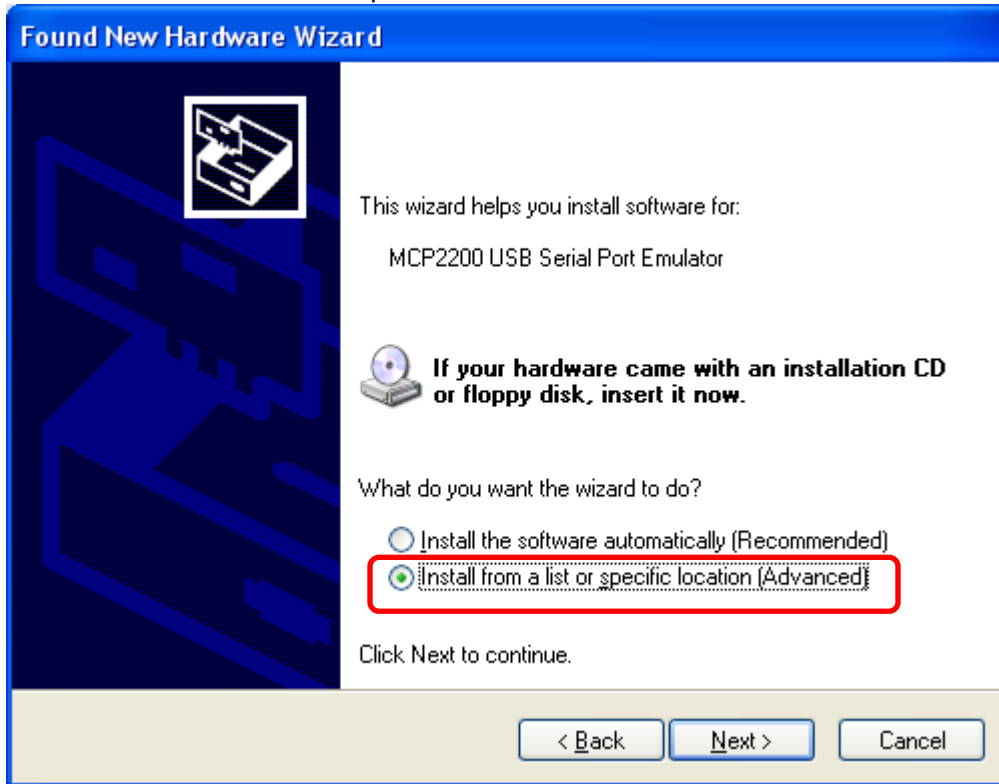
USB driver installation

1. Download the file and unzip to a preferred location.
2. Plug in the 24V power supply to the WSG-101 gateway.
3. Connect the WSG-101 BAS Gateway to the PC using a USB cable.
Plug the USB cable into the computer, then plug the other end into the “PC Interface ” port on the WSG-101 gateway.
4. The computer should recognize new hardware and ask for a driver. **Manually** install the driver as shown below. DO NOT use Windows automatic driver search.

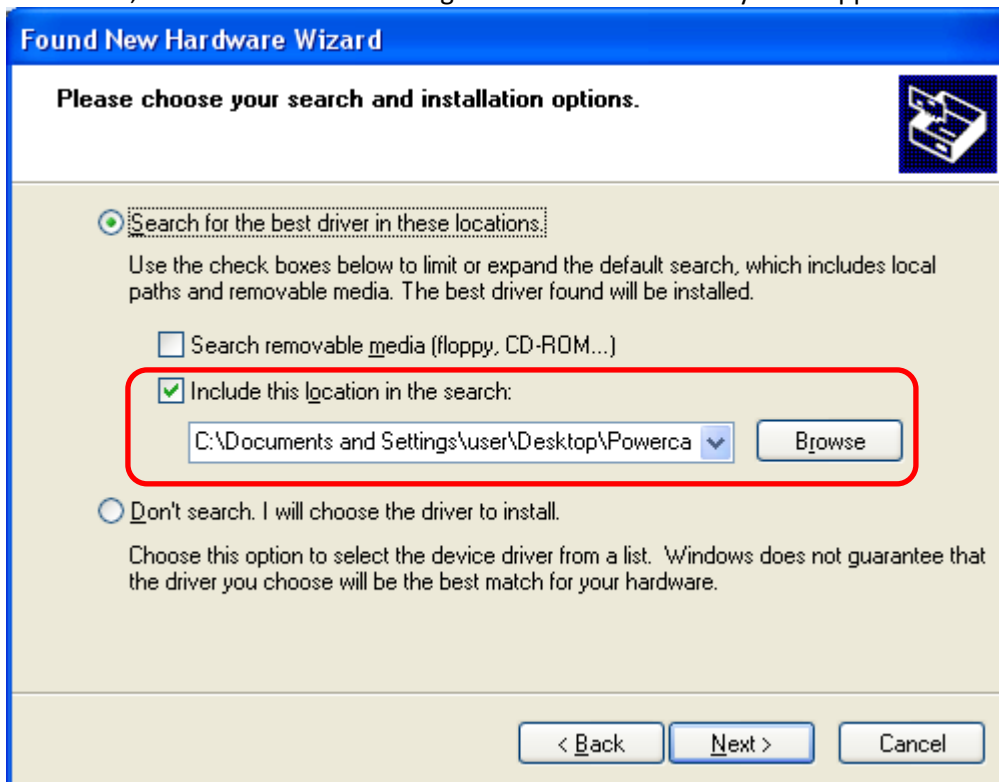
When the following screen appears select “No, not at this time” and then click “Next”.



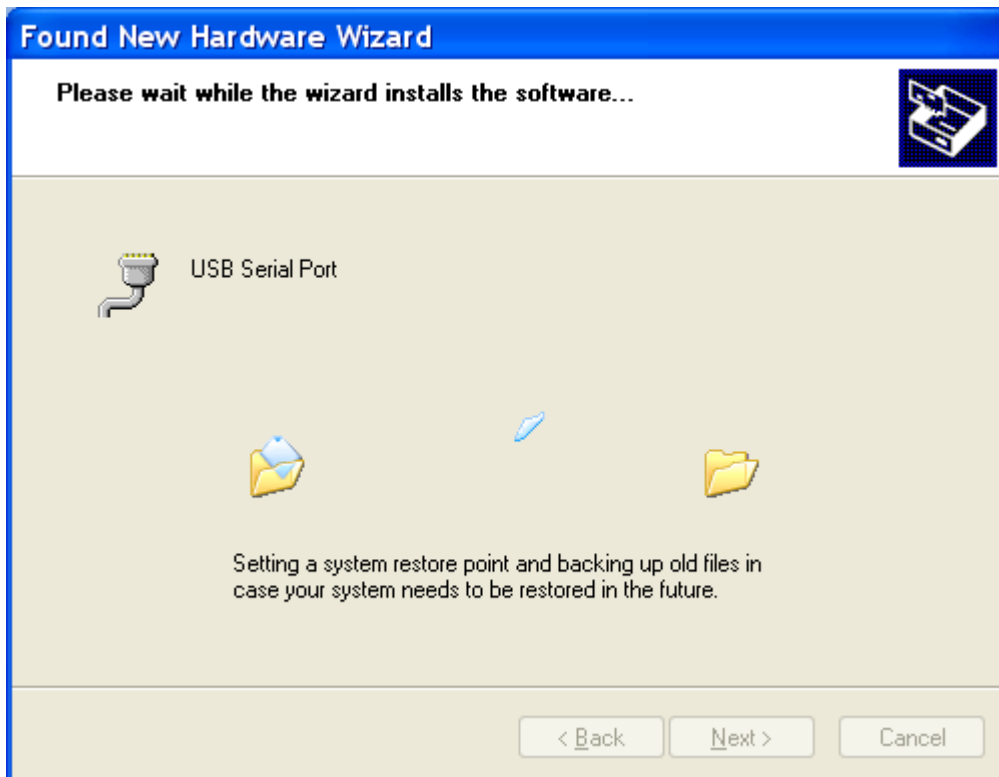
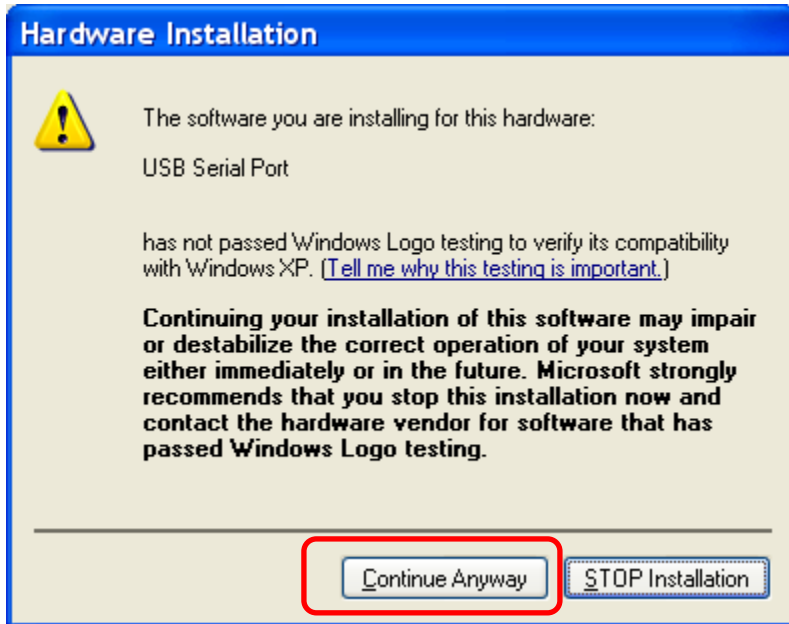
5. Select “Install from a list or specific location” and then click “Next.”



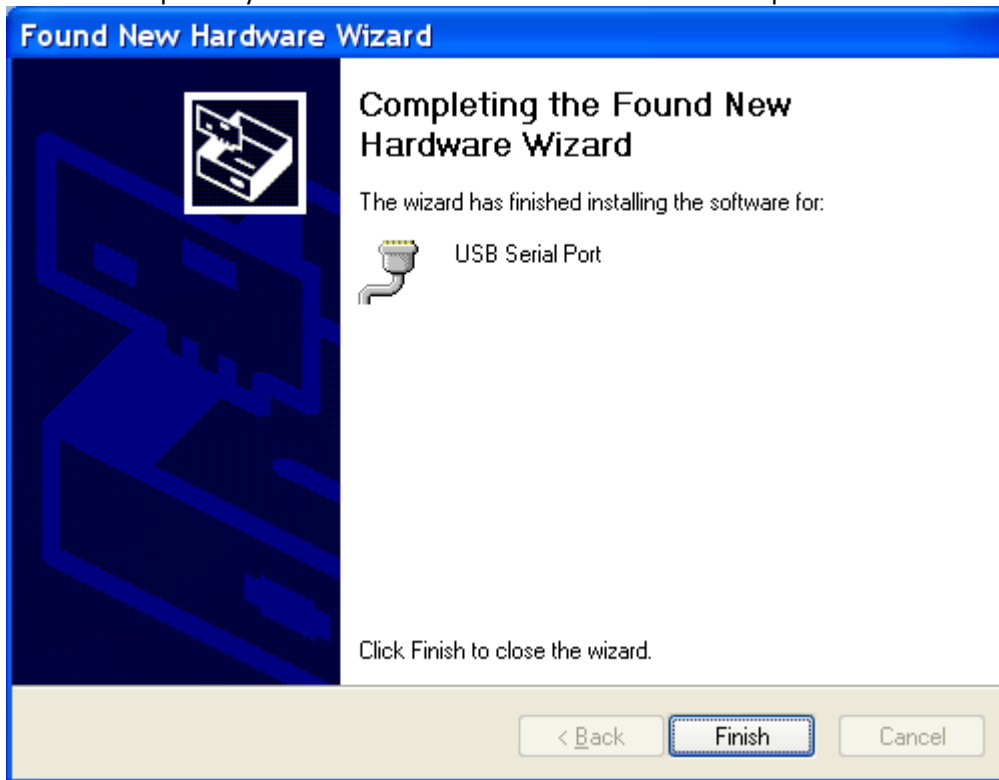
6. Select the “Search...” option, deselect the “... removable media” option, and select “Include this location...”, then click browse to navigate to the folder where you unzipped the USB driver. Click “Next.”



6. The following screens will appear. Click “Continue Anyway” to proceed.



7. When completed you should see this screen. Click “Finish” to proceed.



After clicking “finish” your PC should provide a message bubble indicating the new hardware is found and ready to use.

Note – the driver only needs to be located and installed once. After the initial installation, if you connect a new WSG-101 gateway to the same computer, you can have Windows automatically find the correct driver without locating it manually.

Appendix C

Installing and Configuring HyperTerminal

HyperTerminal or an equivalent terminal emulator program is needed to display data from the WSG-101 BAS gateway and for configuration of certain parameters

HyperTerminal is included with Windows XP and earlier versions and no installation is required.

Windows Vista and Windows 7 users can download HyperTerminal from the following link

<http://www.powercastco.com/zip/HyperTerminal.zip>

The download file is also found on the following page:

<http://www.powercastco.com/resources/>

There are only two files in this ZIP package:

hypertrm.dll
hypertrm.exe

1. Unzip the files to a location of your choice and be sure to keep these files in the same directory. Do not launch HyperTerminal until after the USB driver has been installed according to Appendix B. This appendix describes how to configure HyperTerminal, but the following settings are needed with any terminal emulator that is used:

Baud rate: 19200 bps
Data bits: 8 bits
Parity: None
Stop bits: 1 bit
Flow control: None
Emulation: ANSI or Auto Detect

Windows XP or Windows 2000

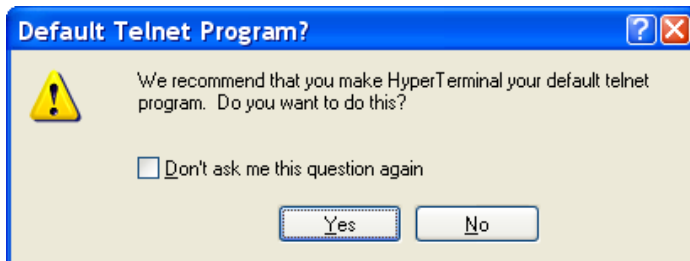
HyperTerminal is provided with Windows XP and earlier versions. To access the program use the following menu options:

Start Menu > All Programs > Accessories > Communications > HyperTerminal

Windows Vista or Windows 7

Go to the directory where HyperTerminal was installed from and double click on **hypertrm.exe** to launch the program.

2. Upon starting the program the dialog box may ask you if you would like to make HyperTerminal your default telnet program. Select Yes or No to proceed.



3. Next, you will be shown the following dialog box in which to enter a name for the connection. You can choose any name, "Powercast WSG-101" is used in this manual. Enter a name into the dialog box and select "OK" to continue.



4. The following dialog box will appear. Select the COM port which is being used for the access point and click “OK”. (COM 14 is used in this example. If there is more than one COM port the one for the gateway is usually the highest number.)

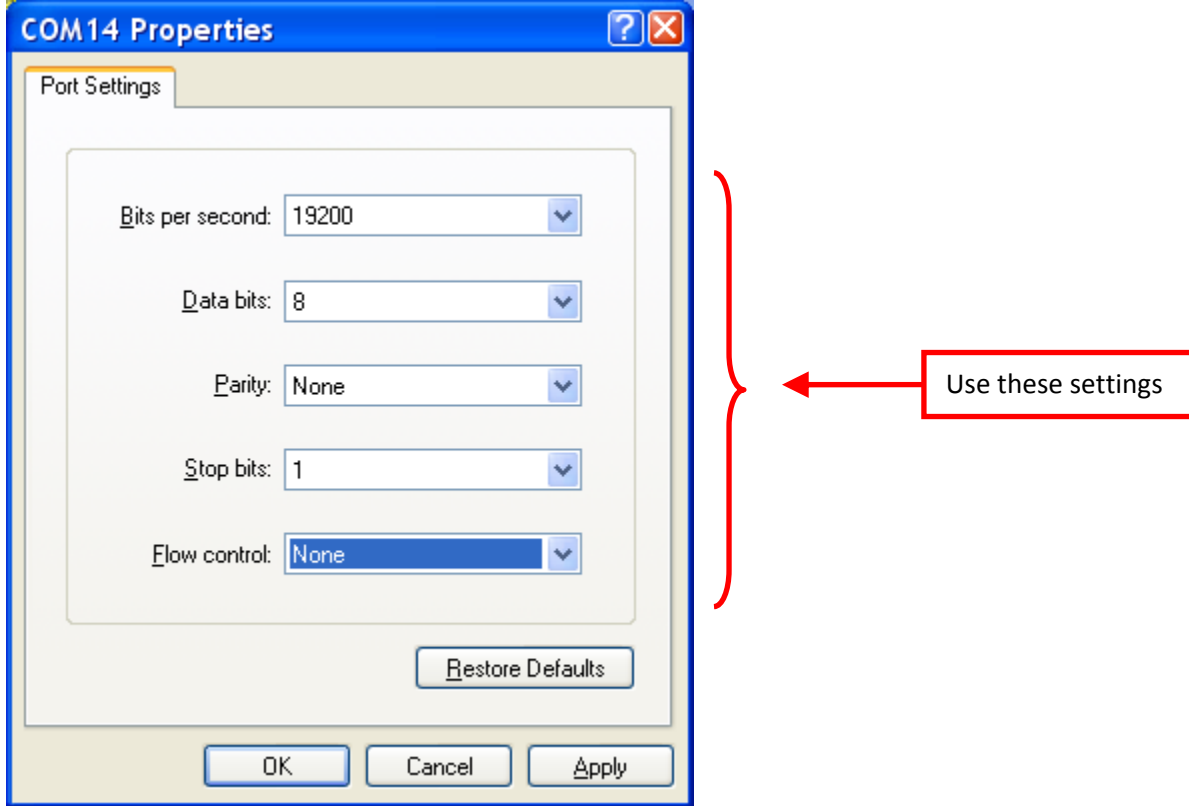


Note:

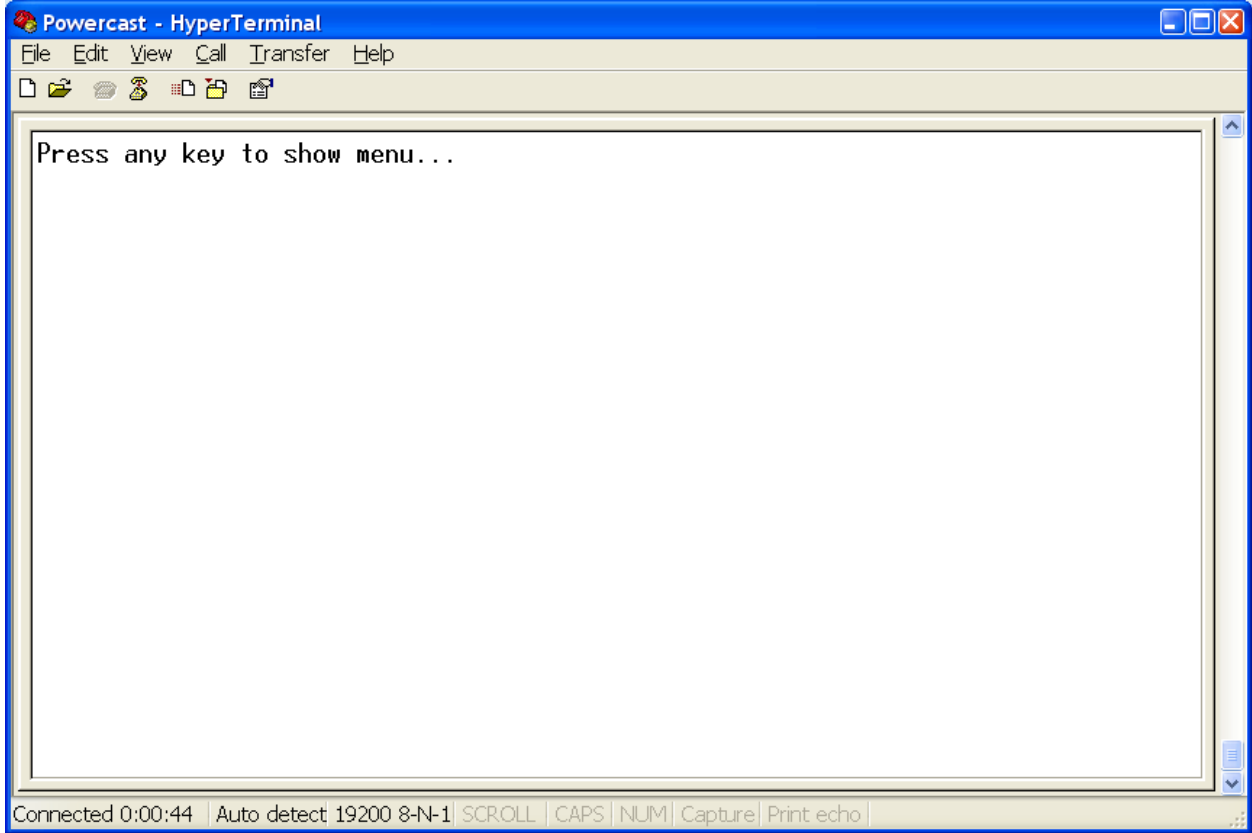
If more than one COM port is shown you can use System Properties through Windows Control Panel to determine which is the correct COM port. To access System Properties on your PC (using Windows XP) select the following menu options:

1. Start Menu > Control Panel > System
2. Click on the “Hardware” tab and then “Device Manager”
3. Scroll down until you see “Ports (COM & LPT)” and click the “+” sign to expand the list.

5. Choose the port settings as shown below and click “OK”.



6. When HyperTerminal is properly configured you should start seeing the startup message.



7. After pressing a key you will be show the options menu. Return to the main section of this guide for further information.

