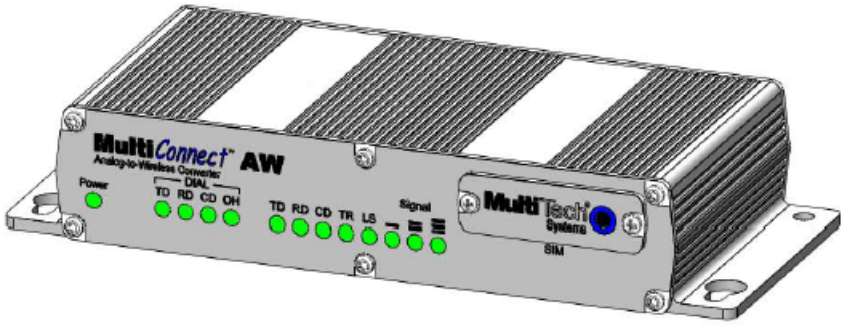
MultiConnect™ AW

Analog-to-Wireless Converter



User Guide

MultiTech Systems

MultiConnect™ AW User Guide

MT100A2W & MT100A2W-G
S000467C, Revision C

Copyright

Revision History

Revision	Date	Description
A	07/20/09	Initial Release
B	10/13/09	Add Support portal link.
C	04/28/10	Update flash wizard and include firmware version 0.21G.

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Contacting Multi-Tech Support

In order to better serve our customers, manage support requests and shorten resolution times, we have created the online web portal allowing you to submit questions regarding Multi-Tech products directly to our technical support team. Get answers to your most complex questions, ranging from implementation, troubleshooting, product configuration, firmware upgrades and much more.

To create an account and submit a Support Case on the Portal, visit support.multitech.com

Online Web Portal

https://support.multitech.com

The Knowledge Base provides immediate answers to your questions and gives you access to support resolutions for all Multi-Tech products. Visit our support area on the website for other support services.

Knowledge Base and Support Services

www.multitech.com/support.go

Technical Support

Business Hours: M-F, 9am to 5pm CST

Country	By Email	By Phone
Europe, Middle East, Africa:	support@multitech.co.uk	+(44) 118 959 7774
U.S., Canada, all others:	support@multitech.com	800-972-2439 or 763-717-5863

Warranty

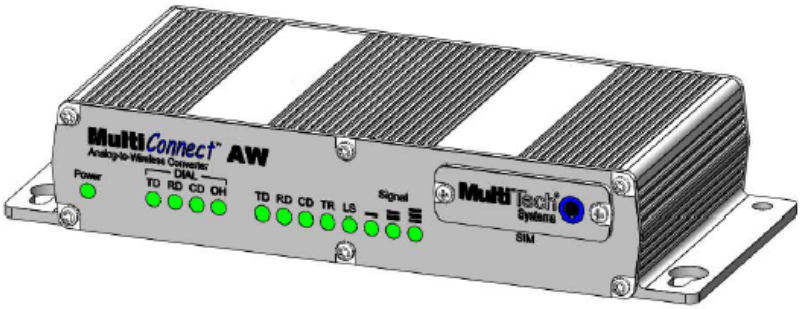
To read the warranty statement for your product, please visit: http://www.multitech.com/warranty.go

Contents

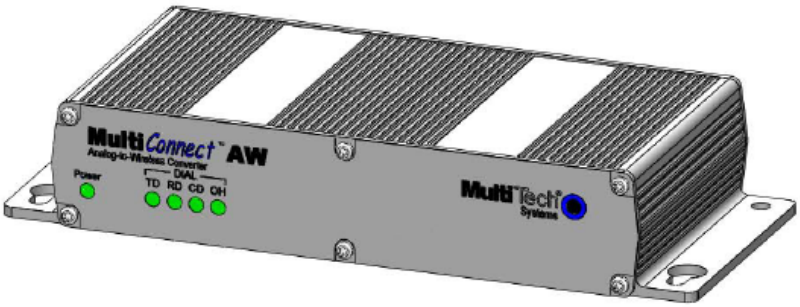
Chapter 1 – Product Description and Specifications

Product Description

The MultiConnect™ AW Analog-to-Wireless converter is a convenient turnkey solution that allows legacy equipment with built-in analog modems to connect to a cellular network. By emulating the traditional dial-up PSTN network and using a cellular modem, the affordable MultiConnect AW converter gives new life to devices currently using traditional analog dial-up communications. The MultiConnect AW model (MT100A2W-G) with its internal GPRS or GSM cellular modem allows connection to the cellular packet data network (GPRS) or the circuit switched data network (GSM). The MultiConnect AW model (MT100A2W) requires a Multi-Tech CDMA, RS232 based external modem for the cellular connection. Both models are housed in a rugged metal chassis. The MultiConnect AW converter operates on standards based communication networks and can be desktop or panel mounted.



Model MT100A2W-G



Model MT100A2W

Features

- Turnkey solution with integrated quad-band GSM/GPRS modem, V.34/33.6K analog modem and SLIC for PSTN emulation
- Separate model, MT100A2W, for use with external CDMA modem
- Supports packet data, circuit switched data and PPP Pass-through modes
- RJ-11 port provides dial tone, ring, busy and DTMF detection
- Supports analog modem connections from 300 baud to 33.6K bps with error correction and data compression
- Serial port configuration
- Rugged metal chassis
- LED's for visual monitoring of power, signal strength, RS-232 and phone line status (Model MT100A2W-G only)
- SMA antenna connector and SIM socket (Model MT100A2W-G only)
- Desktop or panel mounting
- Two-year warranty

AT Command Information

AT commands for the MultiConnect AW are published in separate Reference Guides included on the MultiConnect CD and posted on the Multi-Tech web site.

Safety

Dial Port Caution

The dial port is **not** designed to be connected to a Public Telecommunications Network (PSTN/phone line) or used outside the building.

General Safety

The modem is designed for and intended to be used in fixed and mobile applications. “Fixed” means that the device is physically secured at one location and is not able to be easily moved to another location. “Mobile” means that the device is designed to be used in other than fixed locations.

Caution: Maintain a separation distance of at least 20 cm (8 inches) between the transmitter’s antenna and the body of the user or nearby persons. The Modem is not designed for or intended to be used in portable applications within 20 cm. (8 inches) of the body of the user.

RF Interference Issues

It is important to follow any special regulations regarding the use of radio equipment due in particular to the possibility of radio frequency, RF, interference. Please follow the safety advice given below carefully.

- Switch OFF your MultiConnect when in an aircraft. The use of cellular telephones in an aircraft may endanger the operation of the aircraft, disrupt the cellular network and is illegal. Failure to observe this instruction may lead to suspension or denial of cellular telephone services to the offender, or legal action or both.
- Switch OFF your MultiConnect when around gasoline or diesel-fuel pumps and before filling your vehicle with fuel.
- Switch OFF your MultiConnect in hospitals and any other place where medical equipment may be in use.
- Respect restrictions on the use of radio equipment in fuel depots, chemical plants or where blasting operations are in progress.
- There may be a hazard associated with the operation of your MultiConnect close to inadequately protected personal medical devices such as hearing aids and pacemakers. Consult the manufacturers of the medical device to determine if it is adequately protected.
- Operation of your MultiConnect close to other electronic equipment may also cause interference if the equipment is inadequately protected. Observe any warning signs and manufacturers’ recommendations.

Maintenance of the Wireless MultiConnect

Your wireless MultiConnect is the product of advanced engineering, design, and craftsmanship and should be treated with care. The suggestions below will help you to enjoy this product for many years.

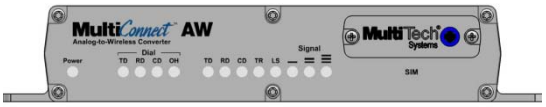
- Do not expose the MultiConnect to any extreme environment where the temperature or humidity is high.
- Do not attempt to disassemble the MultiConnect. There are no user serviceable parts inside.
- Do not expose the MultiConnect to water, rain, or spilled beverages. It is not waterproof.
- Do not abuse your MultiConnect by dropping, knocking, or violently shaking it. Rough handling can damage it.
- Do not place the MultiConnect alongside computer discs, credit or travel cards, or other magnetic media. The information contained on discs or cards may be affected by the phone.
- The use of accessories not authorized by Multi-Tech or not compliant with Multi-Tech’s accessory specifications may invalidate the warranty of the MultiConnect.
- In the unlikely event of a fault in the MultiConnect, contact Multi-Tech Technical Support.

Handling Precautions

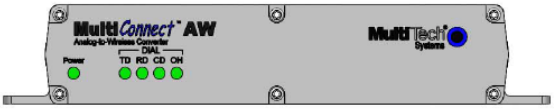
All devices must be handled with certain precautions to avoid damage due to the accumulation of static charge. Although input protection circuitry has been incorporated into the devices to minimize the effect of this static build up, proper precautions should be taken to avoid exposure to electrostatic discharge during handling and mounting.

Front Panel

The front panel is designed with a Power indicator and four Dial indicators on both models. The MT100A2W-G model also has five wireless modem LEDs, three Signal strength LEDs, and a SIM door. The Power LED lights when power is applied to the unit. The four analog signal LEDs (Dial) display the activity of the analog modem port. The five wireless modem LEDs display the activity of the internal wireless modem and the three Signal strength LEDs display the signal strength level of the internal wireless connection on the MT100A2W-G model. The SIM door on the right side provides access to the SIM card holder for the MT100A2W-G model.



MT100A2W-G



MT100A2W

LEDs

LED Indicators	
Power	Indicates presence of DC power when lit.
Dial	**TD** – **Transmit Data** – Flashes when the analog modem port is transmitting data.
	RD – **Receive Data** – Flashes when the analog modem port is receiving data.
	CD -Carrier Detect. Lit when the data connection from the analog modem port is established.
	OH – Off-hook – Lit when the analog modem port goes off-hook
Internal Wireless Modem MT100A2W-G Model only	**TD** – **Transmit Data** – Flashes when the wireless modem is transmitting data.
	RD – **Receive Data** – Flashes when wireless modem is receiving data.
	CD -Carrier Detect. Lit when the data connection has been established.
	TR - Terminal Ready – Lit indicates the communication channel between the internal processor and the internal wireless modem is ready.
	LS - Link Status. **Off -** Unit is off or not registered on network. **Continuous "ON" -** Indicates that the wireless modem is not registered on the network. **Slow Flash * -** Indicates registration on network. **Quick Flash ** –** Indicates registration on the network and communication is in progress.
Signal MT100A2W-G Model only	**ALL OFF -** Unit is off, not registered on network, or extremely week signal (RSSI <7). **1 Bar** "**ON**" – Very weak signal (7 < = RSSI <12) **1 Bar** and **2 Bar** "**ON**" – Week signal (12 < = RSSI <12) **1 Bar**, **2 Bar**, and **3 Bar** "**ON**" – Good signal (RSSI > = 15)

Package Contents

- 1 MultiConnect Converter
- 1 antenna
- 1 RS232 cable
- 1 power supply
- 1 Quick Start Guide
- 1 MultiConnect CD

  Note: You must supply mounting screws.

Note: Your wireless provider will supply the SIM card for the MT100A2W-G model.

Interfaces

The MultiConnect has several interfaces:

- LED function indicating operating status
- External antenna, via SMA connector (MT100A2W-G model only)
- Serial port, Command, for configuration (via 9-pin DE9 female)
- Dial port, via RJ11
- Modem port, via 9-pin DE9 male (MT100A2W model only)
- Power supply (via 2.5mm miniature power jack)
- SIM card holder (MT100A2W-G model only)

Specifications

Separate specifications are provided for the MT100A2W-G model followed by the specifications for the MT100A2W.

MT100A2W-G

Category	Description
Performance	GPRS; Class 10
Band, Frequency	Quad-band, GSM/GPRS, 850/900/1800/1900M Hz
Packet Data	Class 10, full PBCCH Support, coding schemes CS1-4, Mobile station Class B
Circuit-Switched Data	Asynchronous, non-transparent up to 14.4Kbps (V.110)
Data Format	For Serial Interface - Asynchronous, 8-N-1, Fixed 115K bps
Flow Control	Hardware flow control
SIM Connector	Standard 1.8V/3V SIM receptacle
Command Connector	DE9 (female connector)
Dial Connector	RJ11
Antenna Connector	RF Antenna: SMA (female connector). Refer to Antenna Specifications.
Power Connector	2.5mm miniature screw-on
Voltage Range	9V to 32VDC @ 400mA
Power Requirements*	**Typical:** 0.23A @ 9V @ 2.04W 0.12A @ 20V @ 2.31W 0.08A @ 32V @ 2.48W **9V Peak** 1.43A **20V Peak** 0.75A **32V Peak** 0.50A **Max:** 0.34A @ 9V @ 2.97W 0.16A @ 20V @ 3.17W 0.11A @ 32V @ 3.34W
Dimensions	7” W x 1.24”H x 2.79”D .78lbs 17.78cmW x 3.15cmH x 7.07cmD 0.320Kg
Operating Temperature*	-40° C to +60° C UL listed @ +40° C
Storage Temperature	-40° C to +85° C
Humidity	Relative humidity 20% to 90% noncondensing
Compliance	**EMC Compliance** FCC Part 15 EN55022 EN55024 **Radio Compliance** FCC Part 22, 24 RSS 132,133 EN301 489-1 EN301 489-7 EN301 511 AS/ACIF S042.1, S042.3 **Safety:** UL60950-1 cUL60950-1 IEC60950-1 **Network Compliance:** PTCRB

* Multi-Tech Systems, Inc recommends that the customer incorporate a 10% buffer into their power source when determining product load.

** UL Listed @ 40°C. Limited by power supply. UL Certification does not apply or extend to an ambient above 40°C and has not been evaluated by UL for ambient greater than 40°C

** “UL has evaluated this device for use in ordinary locations only. Installation in a vehicle or other outdoor locations has not been evaluated by UL. UL Certification does not apply or extend to use in vehicles or outdoor applications or in ambient above 40° C.”

** Optional power must be UL Listed ITE power supply marked LPS or Class 2 rated 9-32Vdc, 1.44 – 0.4A

MT100A2W

Category	Description
Command Connector	DE9 (female connector)
Modem Connector	DE9
Dial Connector	RJ11
Power Connector	2.5mm miniature screw-on
Voltage Range	9V to 32VDC @ 400mA
Power Requirements*	**Typical:** 0.156A @ 9V @ 1.404W 0.078A @ 20V @ 1.560W 0.053A @ 32V @ 1.696W **Max:** 0.233A @ 9V @ 2.097W 0.113A @ 20V @ 2.260W 0.076A @ 32V @ 2.432W
Dimensions	7" W x 1.24"H x 2.79"D .70lbs 17.78cmW x 3.15cmH x 7.07cmD 0.318Kg
Operating Temperature	-40° C to +60° C UL listed @ +40° C
Storage Temperature	-40° C to +85° C
Humidity	Relative humidity 20% to 90% noncondensing
Compliance	**EMC Compliance** FCC Part 15 EN55022 EN55024 **Radio Compliance** FCC Part 22, 24 RSS 132,133 EN301 489-1 EN301 489-7 EN301 511 AS/ACIF S042.1, S042.3 **Safety:** UL60950-1 cUL60950-1 IEC60950-1

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** Optional power must be UL Listed ITE power supply marked LPS or Class 2 rated 9-32Vdc, 1.44 – 0.4A

RF Specifications – MT100A2W-G Only

	GSM 850	GSM 900	GSM 1800	GSM 1900
Frequency RX	869 to 894 MHz	925 to 960 MHz	1805 to 1800 MHz	1930 to 1990 MHz
Frequency TX	824 to 849 MHz	880 to 915 MHz	1710 to 1785 MHz	1850 to 1910 MHz
RF Power Stand	2W at 12.5% duty cycle	2W at 12.5% duty cycle	1W at 12.5% duty cycle	1W at 12.5% duty cycle

Antenna Specifications – MT100A2W-G Only

GPRS/GSM Antenna Requirements/Specifications

Frequency Range:	824 – 960 MHz / 1710 – 1990 MHz
Impedance:	50 Ohms
VSWR:	<2.0:1
Typical Radiated Gain:	3 dBi on azimuth plane
Radiation:	Omni
Polarization:	Vertical
Wave:	Half Wave Dipole

Antennas Available from Multi-Tech Systems, Inc.

Description	Part Number
Hinged Right Angle 900/1800 MHz Cellular Modem Antenna	ANF1-1HRA
Hinged Right Angle 800/1900 MHz Cellular Modem Antenna	ANF21HRA
Hinged Right Angle 850/900/1800/1900 MHz Cellular Modem Antenna	ANQB-1HRA

PTCRB Requirements Note

There cannot be any alteration to the authorized antenna system. The antenna system must be the same type with similar in-band and out-of-ban radiation patterns and maintain the same specifications.

FCC Requirements Note (Model MT100A2W-G only)

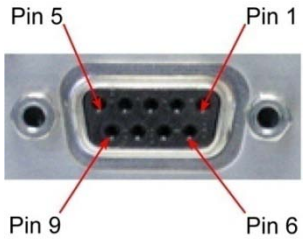
The antenna gain, including cable loss, must not exceed 3.0 dBi at 1900 MHz / 1.4 dBi at 850 MHz for mobile operating configurations and 7.0 dBi at 1900 MHz / 1.4 dBi at 850 MHz for fixed mounted operations, as defined in 2.1091 and 1.1307 of the rules for satisfying RF exposure compliance.

Command Connector

The following table explains the pin functions.

External Power	
Signal	**IN/OUT**
Pin 1 CD	O
Pin 2 RX	O
Pin 3 TX	I
Pin 4 DTR	I
Pin 5 GND	--
Pin 6 DSR	O
Pin 7 RTS	I
Pin 8 CTS	O
Pin 9 RI	O

Command Connector (DE-9 - Female)

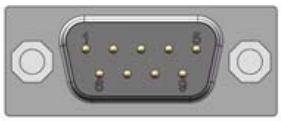


Modem Connector – MT100A2W Only

The following table explains the pin functions.

External Power	
Signal	**IN/OUT**
Pin 1	--
Pin 2 TX	O
Pin 3 RX	I
Pin 4	--
Pin 5 GND	--
Pin 6 DTR	I
Pin 7 CTS	I
Pin 8 RTS	O
Pin 9	--

Modem Connector (DE-9 - Male)



Chapter 2 – Activation and Installation

Account Activation for Wireless Products – MT100A2W-G Only

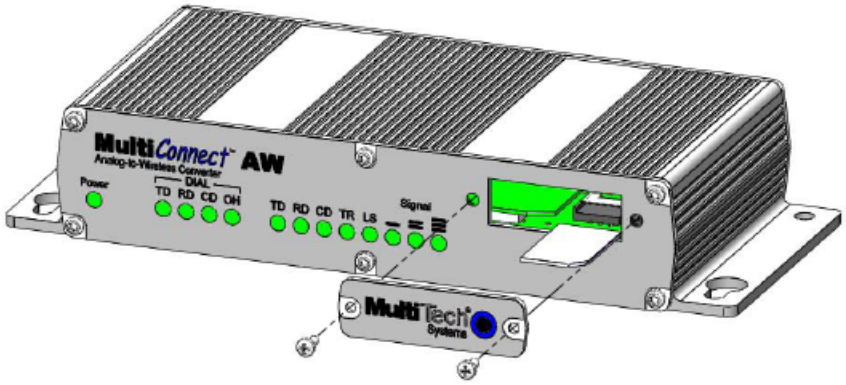
Please refer to the wireless account activation notice included with your unit and located on the MultiConnect CD. Choose the one for your wireless network provider and follow the directions to activate your account.

Insert the SIM Card into Holder, if Required

The MultiConnect requires the power supply connection to begin operation. It also requires a SIM card (Subscriber Identity Module) in the MT100A2W-G unit to operate on a GPRS/GSM network. To install the SIM, do the following:

1. Using a small Phillips screwdriver, remove the two SIM door screws and remove the SIM door.

   Note: When changing a SIM, ensure that power is removed from the unit.



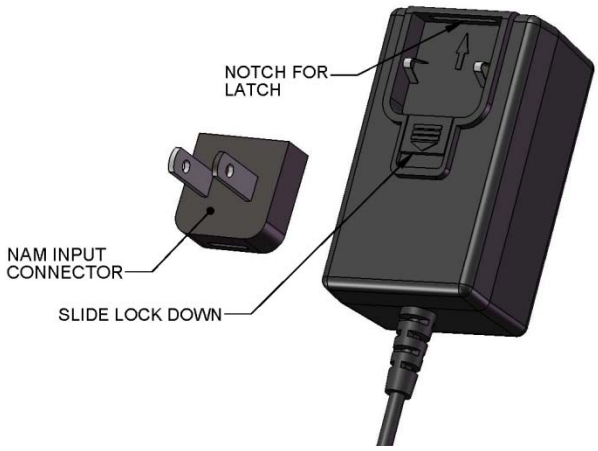
2. Insert the SIM card into the card holder. The above graphic illustrates the correct SIM card orientation.
3. Verify that the SIM card fits into the holder properly and then replace the cover.

Connect the Antenna, Serial Cable, Modem Cable, and Power

MT100A2W-G

MT100A2W

1. Connect a suitable antenna to the ANT connector on the MT100A2W-G model, (see antenna specifications in Chapter 1).
2. Connect the DE9 connector (9-pin) of the RS232 cable to the COMMAND connector on the unit and connect the other end to serial port on your PC.
3. For the MT100A2W model, connect an RS232 cable, male connector, to the MODEM connector on the back of the unit. Connect the other end of the cable to your external wireless modem.
4. Connect the RJ 11 phone cable to the DIAL connector on the unit and connect the other end of the phone cable to the customer' s analog modem.
5. Remove the protective shipping cover. Attach the appropriate input connector to the power supply module by holding down on the slide lock and tipping the input connector to fit into the notch on top of the module and then lowering it into the slide lock. Then release the slide lock.

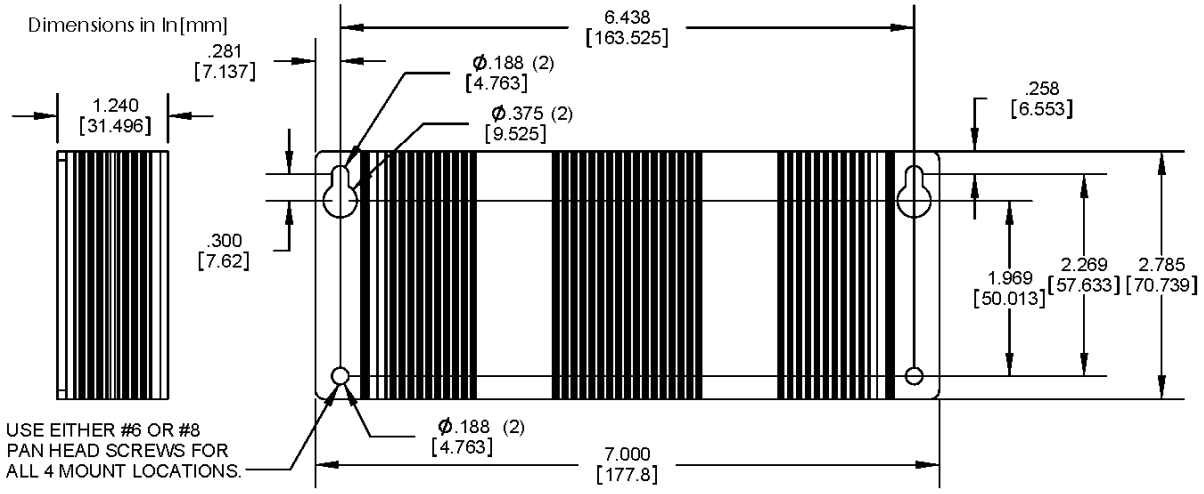


6. Screw-on the power lead from the power supply module to the power connection on the unit. Now, plug the power supply into your power source.

Optional – Attach the Modem to a Flat Surface

The modem can be panel mounted with screws spaced according to the measurement shown.

Note: Use either #4 or #6 pan head screws for all four mount locations.



Chapter 3 - Configuration of your MultiConnect

The configuration of the MultiConnect varies slightly depending on which unit you are configuring, MT100A2W-G which has the internal GPRS/GSM wireless modem. The MT100A2W requires a Multi-Tech CDMA, RS232 based external modem for its cellular connection. The Cellular Port configuration for the MT100A2W-G has more configuration options than the MT100A2W unit. The differences are detailed in the Cellular Port Configuration.

The following configuration procedures are based on the Windows XP Operating System. Other Windows operating systems have similar paths to HyperTerminal. See your system's online Help if you cannot find it.

HyperTerminal

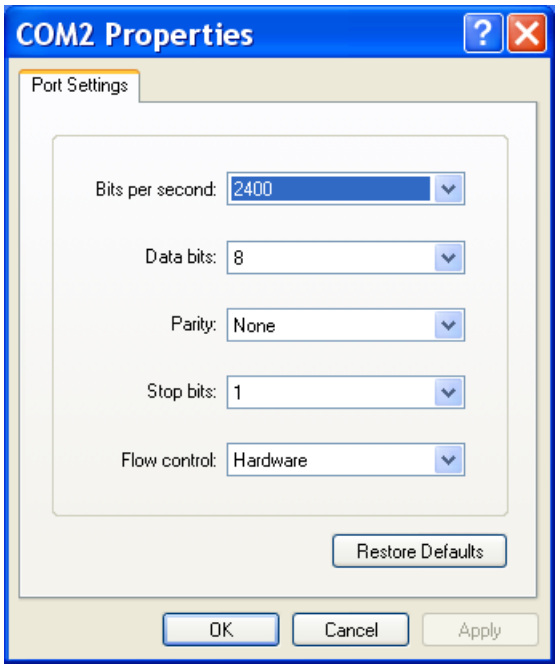
1. Go to **Start I All Programs I Accessories I Communications** and then **click** on **HyperTerminal**.
2. The New Connection screen is displayed. In the **Name:** window, enter an applicable name for your MultiConnect connection.

Click **OK**.

3. The **Connect To** screen is displayed with the Country/region, Area code, and phone number windows blanked out.

Change the **Connect using:** window to the COM port for the MultiConnect. Click on the down arrow and select your COM port.

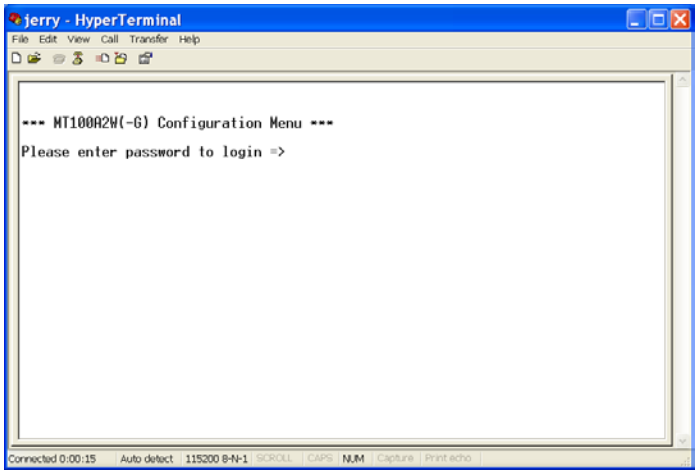
4. The COM Properties screen is displayed.



Change the default **Bits per second:** window from 2400 to 115200. Click the **Apply** button and then **OK**. Press the **ENTER** key.

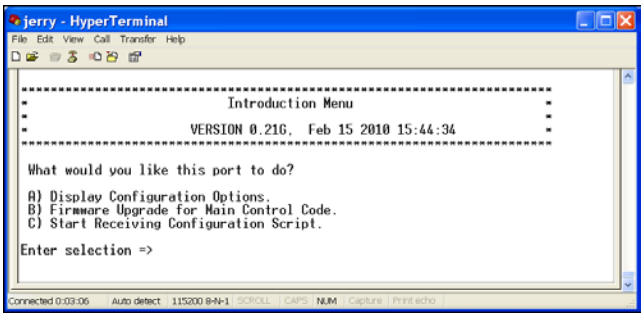
Login

1. The Login screen is displayed.



Enter the default password of **admin**

2. The Introduction Menu is displayed. A question is asked, **What would you like this port to do?**



Option A) Display Configuration Options. To continue to configure either your MT100A2W-G unit or MT100A2W unit, enter **A** in **Enter selection =>** and press **ENTER**. Then continue configuring your MultiConnect unit by proceeding to Device Configuration.

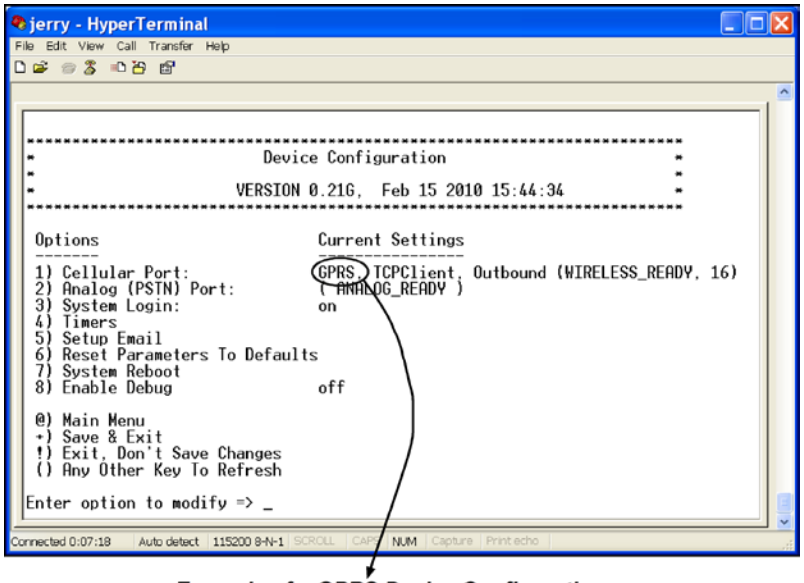
Note: Option B, Firmware Upgrade For Main Control code, is for upgrading firmware, refer to Chapter 5 for details. Option C, Start Receiving Configuration Script, allows you configure scripts, refer to Chapter 6 for details.

Device Configuration

Initial configuration of the MultiConnect AW could involve just the Cellular Port menu which is dependent on cellular network that you are connecting to. The Device Configuration menu changes depending on the cellular network. The cellular network change is in Option 1 which in the Current Settings displays the cellular network type; GPRS or GSM for the MT100A2W-G unit or CDMA for the MT100A2W unit. The GPRS cellular network is for packet switched data. GSM uses circuit switch data. The CDMA cellular network is a MT100A2W unit with an additional DE9 female connector on the back of the unit that is labeled **MODEM** that provides the interface for an external CDMA modem.

The Analog (PSTN) Port menu is defaulted to a typical configuration. The System Login option thru the System Reboot options refine the use of your MultiConnect AW.

1. The Device Configuration main menu is displayed.



Example of a GPRS Device Configuration menu.
For a GSM Device Configuration menu, this would show GSM.
For a CDMA Device Configuration menu, this would show CDMA.

In the Enter option to modify => _ Enter **1** and press **OK** for both versions. The Cellular Port configuration menu is displayed.

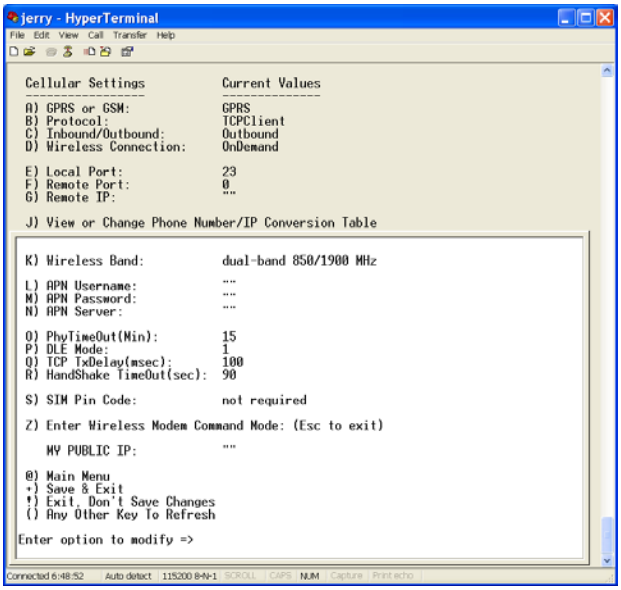
Cellular Port Configuration

The Cellular Port configuration is dependent on the cellular network, a GPRS Cellular network is the default cellular network for MT100A2W-G units and contains the most options to configure. When the Cellular Port is set to GSM on the MT100A2W-G unit, the number of configuration options are reduced. When a MT100A2W unit determines that there is no internal wireless modem, the Device Configuration menu changes to a CDMA network.

The GPRS Cellular network configuration is detailed below. The GSM Cellular Network configuration follows, and finally the CDMA Cellular network configuration is detailed in the last section of the Cellular Port Configuration.

GPRS Cellular Network Configuration

1. The GPRS Cellular Port menu is displayed.



2. Configure options A thru D for your GPRS cellular network.

GPRS Network Dependent		
Option	**Default**	**Description**
A) GPRS or GSM	GPRS	Select GPRS
B) Protocol	TCPClient	Select either TCPClient, Telnet, UDP, or PassThru
C) Inbound or Outbound	Outbound	Select either 0) Auto Detect which automatically detects between inbound and outbound, 1) PPP Client (Outbound), 2) PPP Client (Listening) for inbound.
D) Wireless Connection	OnDemand	Select either OnDemand or Always On. **ATTENTION:** If Always On is desired, wait until you have made all your other configuration changes before selecting this option.

3. When you change the Remote Port or Remote IP, they become the new default without pressing the + key to save the configuration.

Port Dependent		
Option	**Default**	**Description**
E) Local Port	23	The Local Port is for inbound communications
F) Remote Port	0	TCP/IP port that remote device is listening on.
G) Remote IP	None	IP address of remote device on the network you are connecting to.

4. The Wireless Band is set depending on the region of the world the unit is set up for, e.g., 850/1900MHz for NAM.

Wireless Band		
Option	**Default**	**Selection**
K) Wireless Band		This option is default depending on the region of the world the unit is set up for, e.g., 900/1800MHz for Europe. 0) dual-band 850/1900 MHz 1) dual-band 900/1800 MHz

5. Configure options L thru N dependent on your Access Point Name (APN) Server requirements.

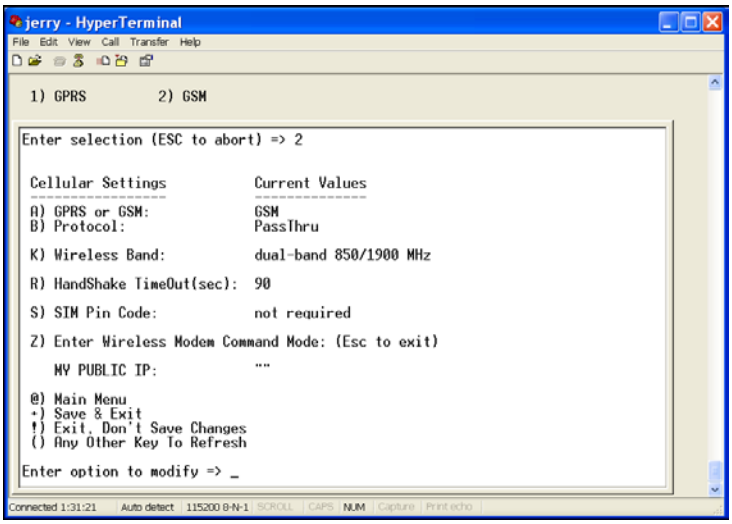
APN Dependent		
Option	**Default**	**Selection**
L) APN User Name		The user name may not be required by all network providers.
M) APN Password		The password may not be required by all network providers.
N) APN Server		The APN assigned by your cellular network provider.

6. Save your configuration by entering a + in the **Enter option to modify =>** . Then return to the Main Device Configuration menu and wait for the cellular wireless network and the analog modem to change to a READY state. The Current Settings will change to: (WIRELESS_READY) (ANALOG_READY).

Initial configuration of the GPRS version is complete.

GSM Cellular Network Configuration

1. The GSM Cellular Port menu is displayed.



2. Configure options A, B and K for your GSM cellular network.

GSM network Dependent		
Option	**Default**	**Selection**
A) GPRS or GSM	GPRS	Select GSM
B) Protocol	PassThru	No selection
K) Wireless Band		This option is default depending on the region of the world the unit is set up for, e.g., 850/1900MHz for NAM. 0) dual-band 850/1900 MHz 1) dual-band 900/1800 MHz

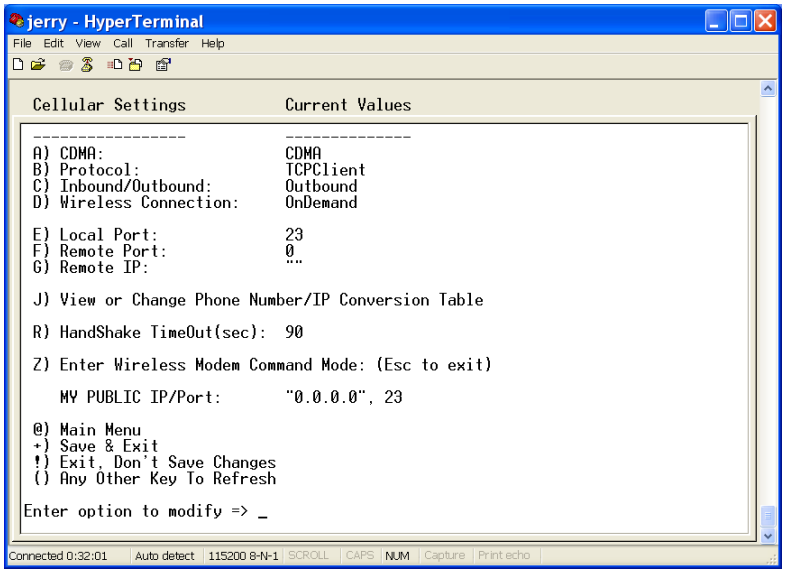
3. You need to save your configuration by entering a + key. Then return to the Main Device Configuration menu and wait for the cellular wireless network and the analog modem to change to a READY state. The Current Settings will change to: (WIRELESS_READY) (ANALOG_READY).

Initial configuration of the GSM version is complete.

CDMA Cellular Network Configuration

When an external Multi-Tech CDMA modem is connected to the MODEM port of a MT100A2W unit and the unit is powered up, the Device Configuration menus will default to a CDMA Cellular Network.

1. The CDMA Cellular Port menu is displayed.



2. Configure options A thru D depending on your CDMA cellular network.

CDMA Network Dependent		
Option	**Default**	**Description**
A) CDMA	CDMA	No selection
B) Protocol	TCPClient	Select either TCPClient, Telnet, UDP, or PassThru
C) Inbound or Outbound	Outbound	Select either 0) Auto Detect which automatically detects between inbound and outbound, 1) PPP Client (Outbound), 2) PPP Client (Listening) for inbound.
D) Wireless Connection	OnDemand	Select either OnDemand or Always On **ATTENTION:** If Always On is desired, wait until you have made all your other configuration changes before selecting this option.

3. When you change the Remote Port or Remote IP, they become the new default without pressing the + key to save the configuration.

Port Dependent		
Option	**Default**	**Description**
E) Local Port	23	The Local Port is for inbound communications
F) Remote Port	0	TCP/IP port that remote device is listening on.
G) Remote IP	None	IP address of remote device on the network you are connecting to.

4. You need to save your configuration by pressing the + key. Then return to the Main Device Configuration menu and wait for the cellular wireless network and the analog modem to change to a READY state. The Current Settings will change to: (WIRELESS_READY) (ANALOG_READY).

Initial configuration of the CDMA Version is complete.

Chapter 4 – Device Configuration

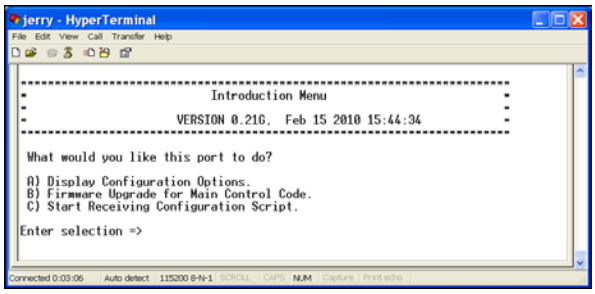
Introduction Menu

The Introduction Menu allows you to configure your device, upgrade the firmware within the device, or develop a script that would automatically configure multiple devices.

To display the Configuration Options, select option A. This allows you to configure the MultiConnect device. For detailed Device Configuration, refer to the following Device Configuration.

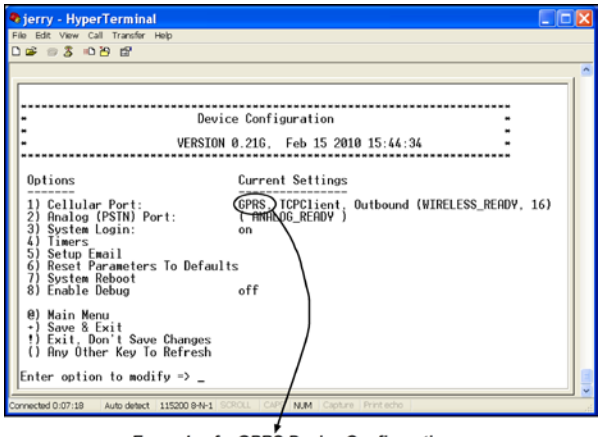
To upgrade the MultiConnect firmware, select option B. For firmware upgrade process, refer to Chapter 5.

To enable a predefined configuration, select option C. Examples of Tera Term terminal emulator scripts for Windows are provided in Chapter 6. A script for a GPRS configuration is provided, one for GSM and one for a CDMA configuration are provided as examples. You can modify the script to meet your configuration needs or you can use another terminal emulator to develop a configuration for your device.



Device Configuration

The Device Configuration menu displays seven main menu options and navigational selections such as Main Menu, Save & Exit, etc. The numbered options are the configurable options and the alphabetical options are the navigational selections. The **Enter option to modify =>** at the bottom of the menu is your selection field.



Example of a GPRS Device Configuration menu.
For a GSM Device Configuration menu, this would show GSM.
For a CDMA Device Configuration menu, this would show CDMA.

Each numbered option in the Device Configuration menu has its own sub-menu with the individual settings for that option. You can select option 1) Cellular Port and press ENTER. The Cellular Port menu is displayed. You can now select a setting, modify it, and then save and exit.

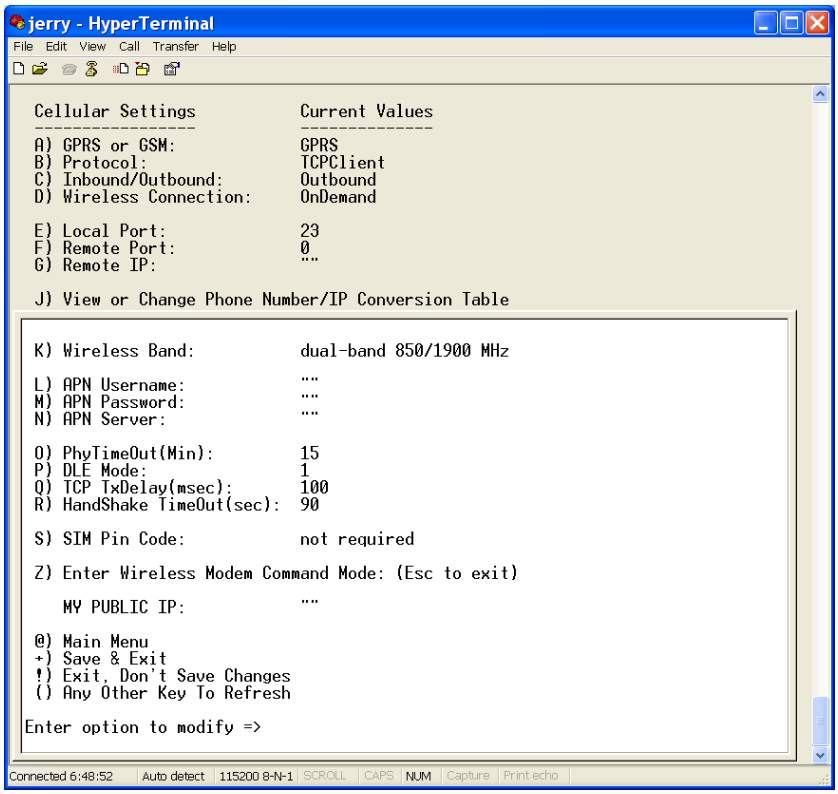
1) Cellular Port		
GPRS Cellular Port *	**GSM Cellular Port ***	**CDMA Cellular Port ****
A) GPRS B) Protocol C) Inbound/Outbound D) Wireless Connection E) Local Port F) Remote Port G) Remote IP J) View or change Phone Number/IP Conversion Table K) Wireless Band	A) GSM B) Protocol K) Wireless Band R) HandShake TimeOut (sec) S) SIM Pin Code Z) Enter Wireless Modem Command Mode	A) CDMA B) Protocol C) Inbound/Outbound D) Wireless Connection E) Local Port F) Remote Port G) Remote IP J) View or change Phone Number/IP Conversion Table

1) Cellular Port Continued		
GPRS Cellular Port *	**GSM Cellular Port ***	**CDMA Cellular Port ****
L) APN Username M) APN Password N) APN Server O) Phy TimeOut (Min) P) DLE Mode Q) TCP TxDelay R) HandShake TimeOut (sec) S) SIM Pin Code Z) Enter Wireless Modem Command Mode		Z) Enter Wireless Modem Command Mode
2) Analog (PSTN) Port	**3) System Login**	**4) Timers**
A) Modem Initialization String B) Modem Settings	A) No Login B) Login Required C) Change Password	A) Menu Inactivity Timer B) No Signal Reset Timer (Not applicable to CDMA)
5) Set Email	**6) Reset Parameters to Default**	**7)System Reboot**
A) SMTP UN B) SMTP PW C) SMTP PORT D) SMTP Authentication E) SMTP Server F) Domain G) Sender's Name H) Sender's Address I) Recipient's Address	Are you sure you want to reset ALL parameters back to Defaults? yes/no	Are you sure you want to reboot the unit? Yes/no

Note: * MT100A2W-G only.

** MT100A2W only.

GPRS Cellular Port Configuration



Network Dependent		
Option	**Default**	**Description**
A) GPRS or GSM	GPRS	The GPRS or GSM option is based on the SIM installed in the unit. **1) GPRS** option requires a packet switched cellular network.
B) Protocol	TCP Client	**1) TCP Client** option is an internet protocol intended to get data from one network device to another. **2) Telnet** option is a client communication. **3) UDP** option is a connectionless protocol in that UDP makes no provision for acknowledgement of packets received. **4) PassThru** option allows for data to be transferred from a legacy device to a remote destination without being modified.
C) Inbound/Outbound	Outbound	**0) Auto Detect** automatically detects between inbound and outbound **1) PPP Client (Outbound)** option is for outbound traffic from the MultiConnect AW to the wireless network. **2) PPP Client Inbound (Listening)** option is for inbound traffic to the MultiConnect AW
D) Wireless Connection	OnDemand	**1) On-Demand** option initiates the wireless connection when a request made. **2) Always On** option is always connected to the cellular network. **ATTENTION:** If Always On is desired, wait until you have made all your other configuration changes before selecting this option.

Port Dependent		
Option	**Default**	**Description**
E) Local Port	23	**Local Port** is the port that the MultiConnect AW listens on for inbound traffic.
F) Remote Port	0	**Remote Port** is the IP port that the remote device listens on. When you change the Remote Port, it becomes the new default port.
G) Remote IP	none	**Remote IP** is the IP address of the device you are connecting to for outbound. When you change the Remote IP, it becomes the new default IP.

Phone Number/IP Conversion Table		
Option	**Default**	**Selection**
J) View or change Phone Number/IP Conversion Table		This option allows for additional connections to be added to the Phone Number/ IP Conversion Table. When a dialed number matches one of those in this table, the default Remote Port and IP options are overridden during the call. If the entry does not match, the default is used. For detail instructions on entering data in this table, refer to View or Change Phone Number/IP Conversion Table in this chapter.

Wireless Band		
Option	**Default**	**Selection**
K) Wireless Band		This option is default depending on the region of the world the unit is set up for, e.g., 900/1800MHz for Europe. 0) dual-band 850/1900 MHz 1) dual-band 900/1800 MHz

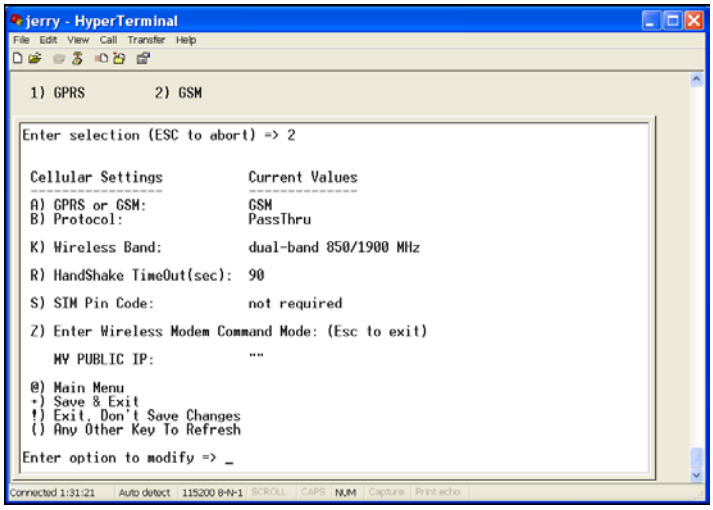
APN* Dependent		
Option	**Default**	**Selection**
L) APN Username		The APN User name is assigned by your cellular network provider for security and authentication purposes. The user name may not be required by all network providers.
M) APN Password		The APN Password is assigned by your cellular network provider for security and authentication purposes. The password may not be required by all network providers.
N) APN Server		The APN assigned by your cellular network provider.

* The Access Point Name (APN) is a server name that your account is setup on with your provider. Your APN will be provided to you by your provider. Here are some well known APNs:

- AT&T; PROXY, INTERNET, or PUBLIC
- T-Mobile; INTERNET2, VOICESSTREAM.COM, INTERNET2, or WAP.VOICESTREAM.COM
- Rogers Wireless of Canada; INTERNET.COM

MultiConnect AW Security		
Option	**Default**	**Selection**
O) PhyTimeout (Min)	15 Min	The Physical Time out option is a time limit in which the MultiConnect AW will drop the connection to the cellular network if no activity is sensed on the network. The range is zero to 255 minutes, with 0 disabling the time out. The default is 15 minutes. Normally, this option should be left in the default value.
P) DLE Mode	1	DLE Mode 0 is enabled, no specific process is needed on [ETX] characters. This means that is not possible for a host to request an end of connection or to receive a clear indication of the end of a connection from the TCP/IP stack. DLE Mode 1 is enabled, the [ETX] characters means a request or an indication of end of correction. As a consequence, [ETX] characters that belong to the payload must be sent by the host on the serial port preceded by a DLE character. Similarly, EXT characters received by the TCP/IP stack from the Internet are sent to the host through the serial port preceded by a DLE character.
Q) TCP TxDelay	100 milliseconds	This option determines the time delay introduced before sending a TCP frame that has not been entirely filled with user data. The time is entered in milliseconds, and it should be noted that a value of 0 initiates the sending of a TCP frame as soon as possible after the reception of a single character value from the host.
R) Handshake TimeOut (sec)	90 seconds	The handshake timeout is a wireless modem timeout of between 1 and 255 seconds. Default is 90 seconds.
		The default option (1) is the SIM pin code is not required. Option 2 is enter or change the pin code. The pin code is four to eight digit number. **Note:** After 3 unsuccessful attempts to enter the PIN, the PUK (Personal Unblocking Key) will be required.
Z) Enter Wireless Modem Command Mode		This option opens the command port on the wireless modem to enter AT commands.

GSM Cellular Port Configuration



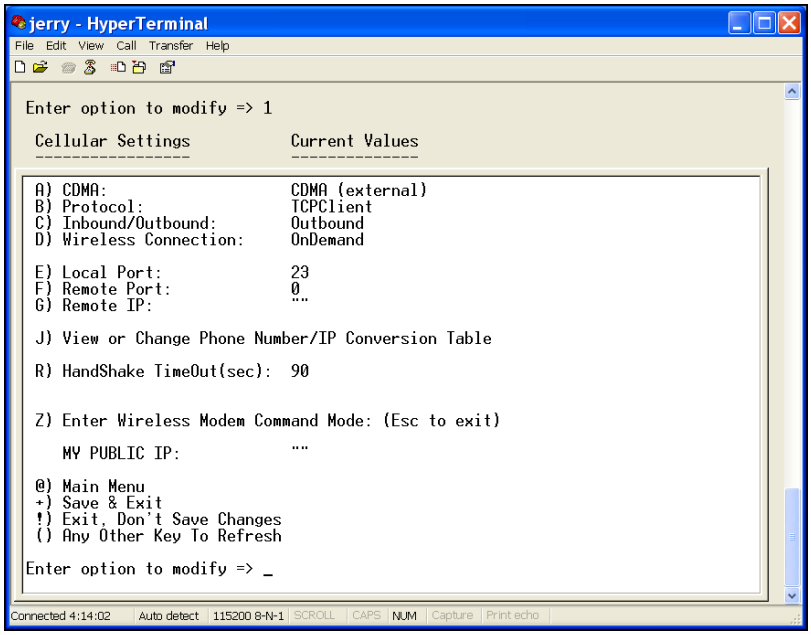
Network Dependent		
Option	**Default**	**Description**
A) GPRS or GSM	GPRS	The GPRS or GSM option is based on the SIM installed in the unit. **GSM** option requires a circuit switched cellular network.
B) Protocol	PassThru	This option defaults to PassThru and there are no additional selections.

Wireless Band		
Option	**Default**	**Selection**
K) Wireless Band		This option is default depending on the region of the world the unit is set up for, e.g., 850/1900MHz for NAM. 0) dual-band 850/1900 MHz 1) dual-band 900/1800 MHz

MultiConnect AW Security		
Option	**Default**	**Selection**
R) Handshake TimeOut (sec)	90 seconds	The handshake timeout is a wireless modem timeout of between 1 and 255 seconds.
S) SIM Pin Code	Not required	The default option (1) is the SIM pin code is not required. Option 2 is enter or change the pin code. The pin code is four to eight digit number. **Note:** After 3 unsuccessful attempts to enter the PIN, the PUK (Personal Unblocking Key) will be required.
Z) Enter Wireless Modem Command Mode		This option opens the command port on the wireless modem allowing you to enter AT commands.

CDMA Cellular Port Configuration

When an external Multi-Tech CDMA modem is connected to the MODEM port of a MT100A2W unit and the unit is powered up, the Device Configuration menus will default to a CDMA Cellular Network.



Network Dependent		
Option	**Default**	**Description**
A) CDMA	CDMA (External)	No selection
B) Protocol	TCPClient	**1) TCPClient** option is an internet protocol intended to get data from one network device to another. **2) Telnet** option is a client communication. **3) UDP** option is a connectionless protocol in that UDP makes no provision for acknowledgement of packets received. **4) PassThru** option is not supported on the CDMA version.
C) Inbound/Outbound	Outbound	**0) Auto Detect** automatically detects between inbound and outbound. **1) PPP Client (Outbound)** option is for outbound traffic from the MultiConnect AW to the wireless network. **2) PPP Client Inbound (Listening)** option is for inbound traffic to the MultiConnect AW
D) Wireless Connection	OnDemand	**1) On-Demand** option initiates the wireless connection when a request made. **2) Always On** option is always connected to the cellular network. **ATTENTION:** If Always On is desired, wait until you have made all your other configuration changes before selecting this option.

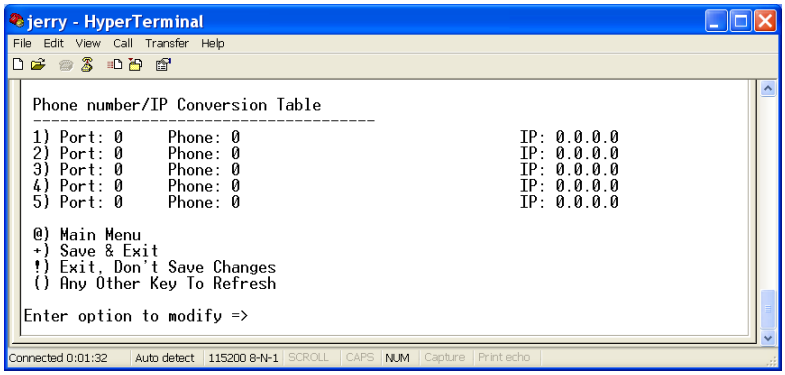
Port Dependent		
Option	**Default**	**Description**
E) Local Port	23	**Local Port** is the port that the MultiConnect AW listens on for inbound traffic.
F) Remote Port	0	**Remote Port** is the IP port that the remote device listens on. When you change the Remote Port, it becomes the new default port.
G) Remote IP	none	**Remote IP** is the IP address of the device you are connecting to for outbound. When you change the Remote IP, it becomes the new default IP.

Phone Number/IP Conversion Table		
Option	**Default**	**Selection**
J) View or change Phone Number/IP Conversion Table		This option allows for additional connections to be added to the Phone Number/ IP Conversion Table. When a dialed number matches one of those in this table, the default Remote Port and IP options are overridden during the call. If the entry does not match, the default is used. For detail instructions on entering data in this table, refer to View or Change Phone Number/IP Conversion Table in this chapter.

MultiConnect AW Security		
Option	**Default**	**Selection**
Z) Enter Wireless Modem Command Mode		This option opens the command port on the wireless modem to enter AT commands.

View or Change Phone Number/IP Conversion Table

The Phone Number/IP Conversion Table allows you to look up an IP address using an analog (PSTN) phone number. The Phone Number/IP Conversion Table allows for 5 entries. When a dialed number matches one of those in the table, the default Remote Port and Remote IP options in the Cellular Port menu are overridden during this call.

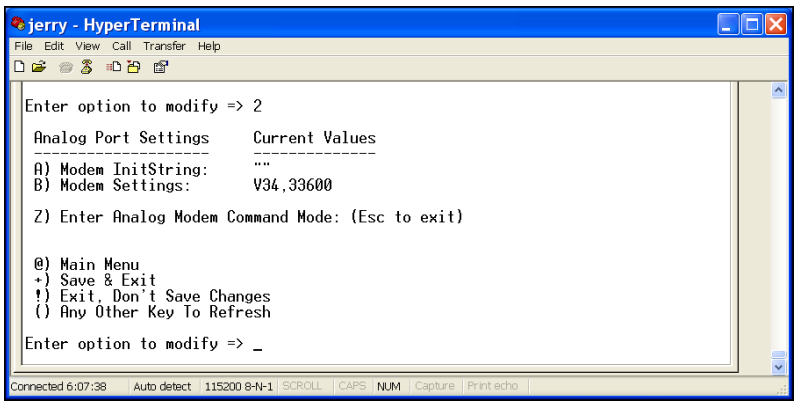


To set up the Conversion Table, you have to:

Entries	Description
Enter option to modify => _	Enter a number for the entry you want to change and press ENTER.
Enter Server Port Number (ESC to abort) :	Enter a numerical port number and press ENTER.
Enter Server Phone Number (ESC to abort) :	Enter the telephone number without the dashes between the area code, exchange, and extension number. The area code, exchange, and extension number.
Enter Server IP (ESC to abort):	Enter the IP address of the server on your cellular network.

When you select the option to modify and press ENTER, the response is for you to add the server port number and press ENTER, then, the phone number is requested, and finally the server IP address is requested. Once you enter the server IP address and press ENTER, the complete entry is saved to the Phone Number/IP Conversion Table. You do not have the press the + key to save your entries.

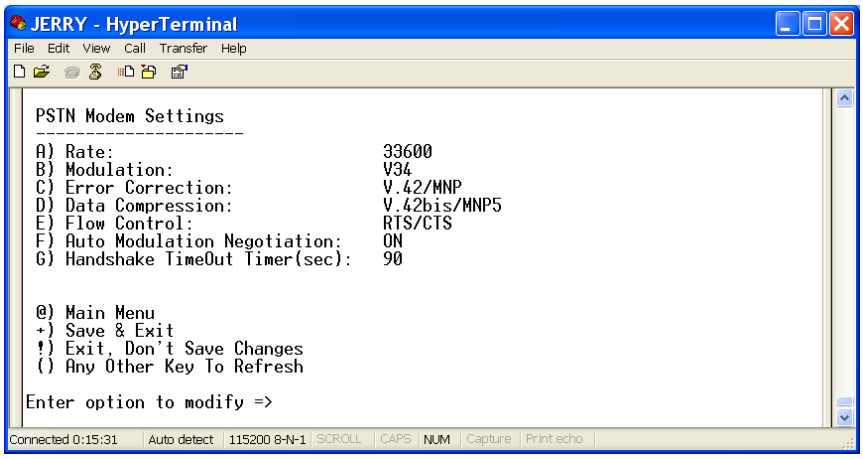
Analog (PSTN) Port Configuration



Option	Default	Selection
A) Modem Initialization String	" "	The Modem Initialization String allows you to enter initialization commands into the internal analog modem.
B) Modem Settings	V34,33600	The Modem Settings option allows you to reconfigure the internal analog modem. By selecting option B, a submenu is displayed allowing you change the baud rate, flow control, etc. Refer to the PSTN Modem Settings menu below.

PSTN Modem Settings

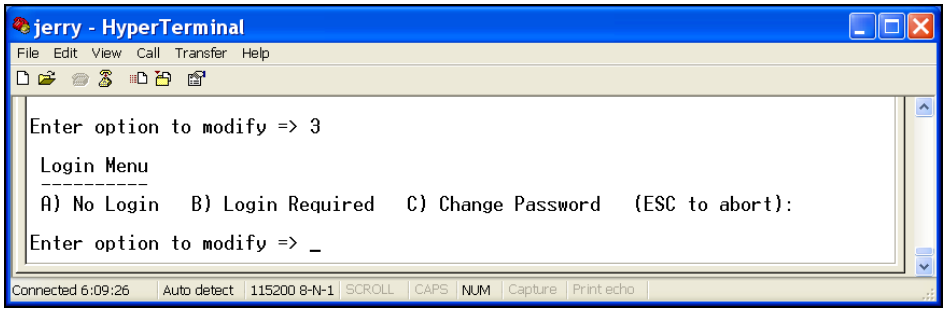
The PSTN Modem Settings menu allow you to reconfigure the customer's analog modem. The seven options are described in the table below.



PSTN Modem Settings		
Option	**Default**	**Selection**
A) Rate	33600	The Rate is the maximum speed of the customer's analog modem. The options are: A) 56000 B) 33600 C) 28800 D) 14400 E) 12000 F) 9600 G) 4800 H) 2400 I) 2200 J) 1200 K)300.
B) Modulation	V34	The customer's analog modem modulation options are: A) V92 B) V90 C) V34 D) V32bis E) V32 F) V22bis G) V22 H) BELL212A I) BELL103
C) Error Correction	V.42/MNP	Error Correction options are: A) V.42/MNP B) V.42 Only C) MNP Only D) Direct Mode E) NoECM

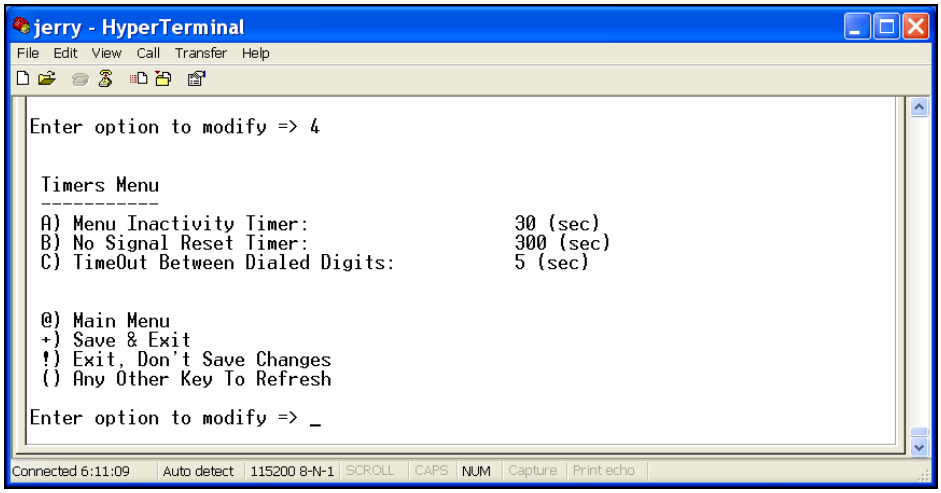
PSTN Modem Settings Continued		
Option	**Default**	**Selection**
D) Data Compression	V.42bis/MNPS	Data Compression options are: A) Enable V.42bis/MNP5 Data Compression or B) Disable Data Compression.
E) Flow Control	RTS/CTS	Flow Control options are: A) RTS/CTS B) XON/XOFF C) Disable
F) Auto Modulation Negotiation	ON	The Auto Modulation Negotiation options are: A) ON or B) OFF
G) Handshake TimeOut Timer (sec)	90	The Handshake Time Out Timer is a range from 1 to 255 seconds. Zero disables the timer.

System Login



Option	Description
A) No Login	The No Login option allows you to gain access to the MultiConnect AW without logging into the device.
B) Login Required	Login Required option requires that you login to the MultiConnect AW before gaining access to the device.
C) Change PassWord	The Change PassWord option allows you to change the pass word of the MultiConnect AW device. The default password is admin. All lower case letters.

Timers



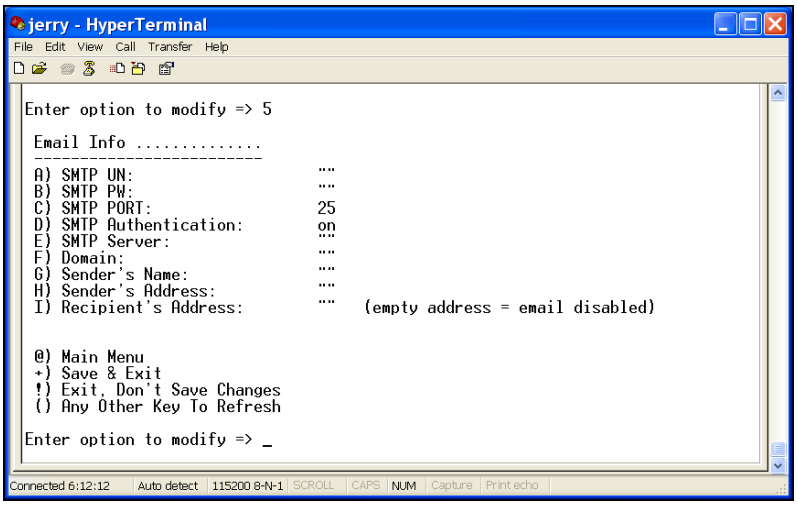
Option	Default	Selection
A) Menu Inactivity Timer	30 (sec)	The Menu Inactivity Timer is a time limit on how long a menu is displayed with no activity. This inactivity time is displayed in seconds. Zero seconds disables the timer.
B) No Signal Reset Timer *	300 (sec)	The MultiConnect AW resets itself if it can not find a signal strong enough to establish a wireless connection. This timer is displayed in seconds. Zero seconds disables timer.

Note: * MT100A2W-G only.

Setup Email

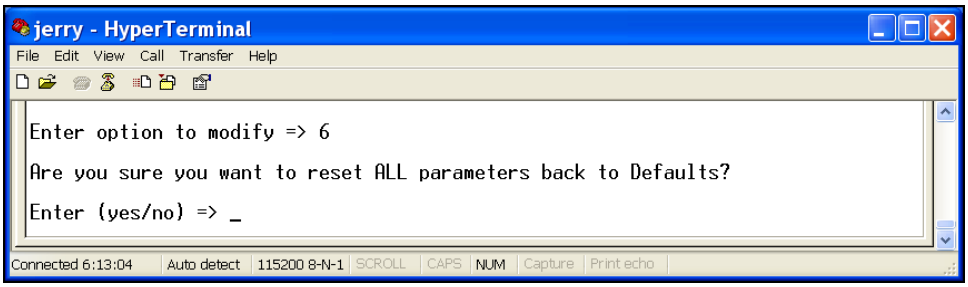
The email function is to send the network assigned public IP address and user assigned local port number to the recipient email address. This email is used for inbound only. The IP address and port number sent in this email are displayed after the last option in the Cellular Settings menu and above the @ Main Menu option. The assigned public IP address and port number are displayed in

"MY PUBLIC IP:



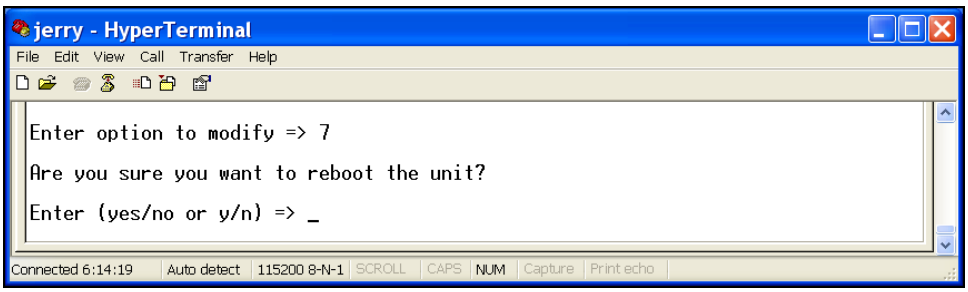
Option	Default Selection
A) SMTP UN	The SMTP User Name, UN, option is the user name of the email server.
B) SMTP PW	The SMTP Pass Word, PW, option is the pass word of the email server.
C) SMTP PORT	The SMTP Port is the port that the email server listens on. The default port number is 25.
D) SMTP Authentication	If your email account requires authentication, the MultiConnect AW will send the user name and pass word to the mail server. The default is to have authentication on.
E) SMTP Server	SMTP Server is the IP address/name of the mail server.
F) Domain	The Domain option is the domain that the mail server is on.
G) Sender's Name	The Sender's Name is who sent the email.
H) Sender's Address	The Sender's Address is the address of where the email came from.
I) Recipient's Address	This is the IP address of where the email is being sent to. If no recipient address, the email service is disabled.

Reset Parameters to Default



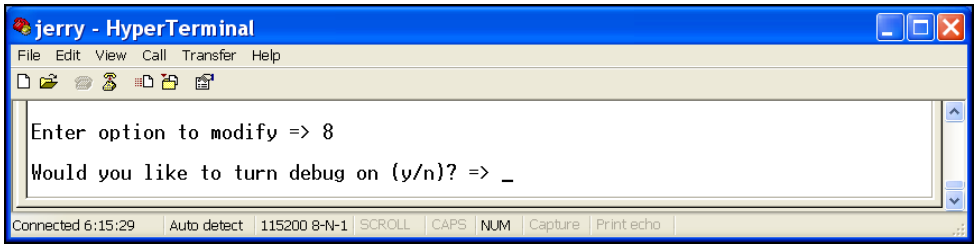
Option	Description
Are you sure you want to reset ALL parameters back to Defaults?	This option requires either a yes or no. You have to enter the word, not just a letter y/n

System Reboot



Option	Description
Are you sure you want to reboot the unit?	This option requires either a yes/no or y/n.

Enable Debug



Chapter 5 – Firmware Upgrade

Your MultiConnect is controlled by semi-permanent software, called *firmware*, which is stored in flash memory. Firmware is nonvolatile; that is, it remains stored in memory when the unit is turned off. However, it can be changed by either the manufacturer or the user as bugs are fixed or new features are added.

Since the firmware in your unit is stored in flash memory, you can upgrade it yourself in a few minutes by using the following procedures.

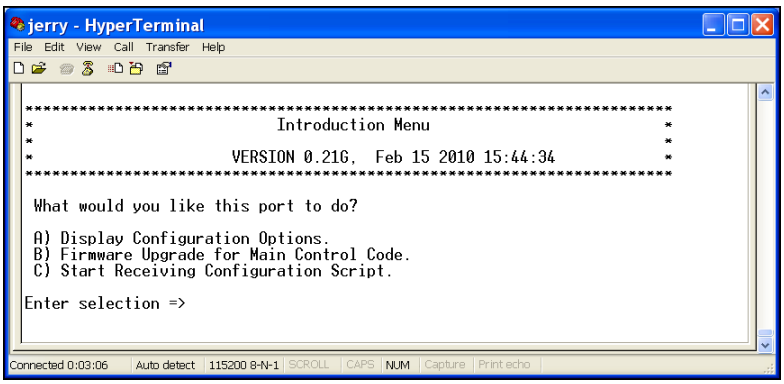
Upgrade Overview

The upgrade procedure consists of the following steps, which are described in greater detail in the following sections.

1. Identify the firmware version of your MultiConnect.
2. Identify the current version of the firmware (you can view this on the Multi-Tech Web site). If your unit already has the current firmware, there is no need to update it.
3. Download the upgrade file for your unit.
4. Install the Flash Wizard and extract the firmware .HEX file from the file you downloaded.
5. Document and clear your stored parameters.
6. Upgrade the unit's firmware using the .HEX file and the Flash Wizard.
7. Restore your parameters.

Identify the unit's firmware

1. Log into either the MT100A2W or MT100A2W-G using HyperTerminal.



The firmware version is displayed in the Introduction Menu, VERSION 0.21G, Feb 15 2010 15:44:34.

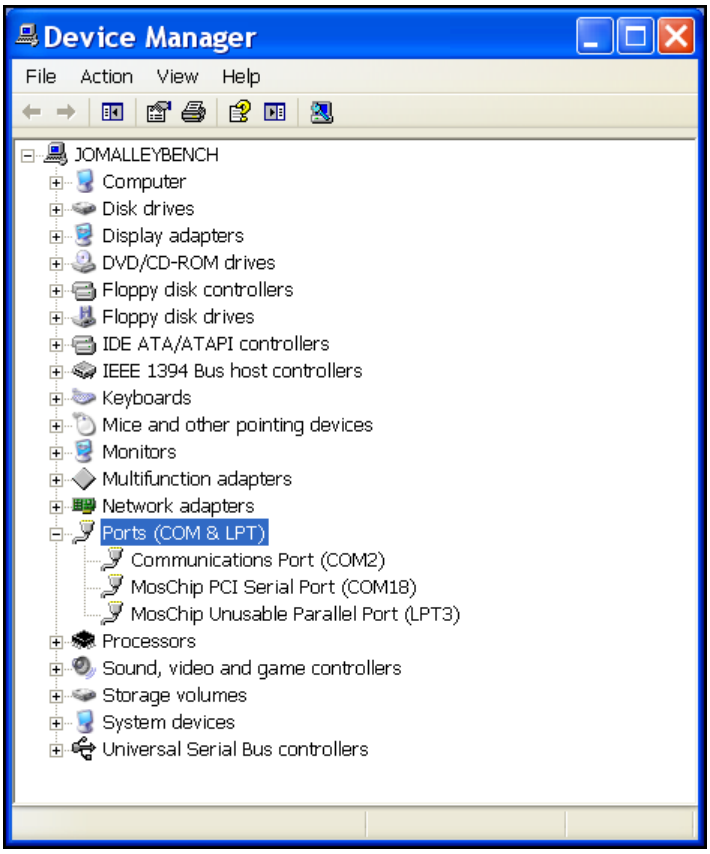
2. Close the terminal application.
3. Using your favorite Web browser, go to **http://www.multitech.com/en_US/SUPPORT/Updates/Firmware**
4. Click on the down arrow and scroll down to either the MT100A2W or MT100A2W-G.
5. Look at the firmware version number. If the firmware version number matches the firmware version number in Step 1, you have the current firmware version and do not need to be updated.
6. If the firmware version number is greater than the firmware version number found in Step 1, your unit has an older firmware version. Continue to download the latest firmware from the Multi-Tech web site.
7. Download the latest firmware version and save the file in a temporary folder on your hard disk.

Extract the Upgrade Files

1. Insert your MultiConnect CD into your CDROM drive.
2. Click on Flash Wizard on the CD splash screen to install Flash Wizard
3. Extract the firmware upgrade files by double-clicking the file name. The extracted files include a .HEX file, which contains the upgrade data, and a Readme file.
4. Copy the upgrade .HEX file into the Flash Wizard folder, which, in a default installation, is at C:\Program Files\MultiTech Systems\Flash Wizard\.

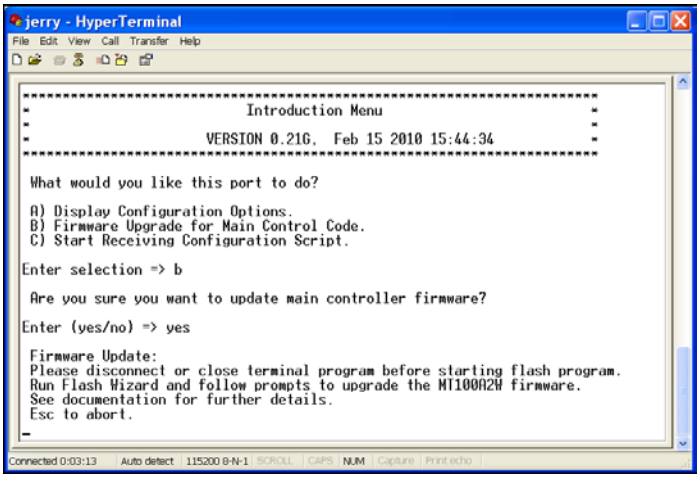
Identify the COM port

1. Go to **Start I Control Panel** and then **Open Device Manager**.



2. Verify the COM port that is connected to either the MT100A2W or MT100A2W-G unit. In this example it is **MosChip PCI Serial Port (COM18).**

3. At the Introduction Menu, select option B) Firmware Upgrade for Main Control Code. The next screen asks the question Are you sure you want to upgrade the Main Control Code? Enter Yes.



At this point, close HyperTerminal.

Upgrade Firmware

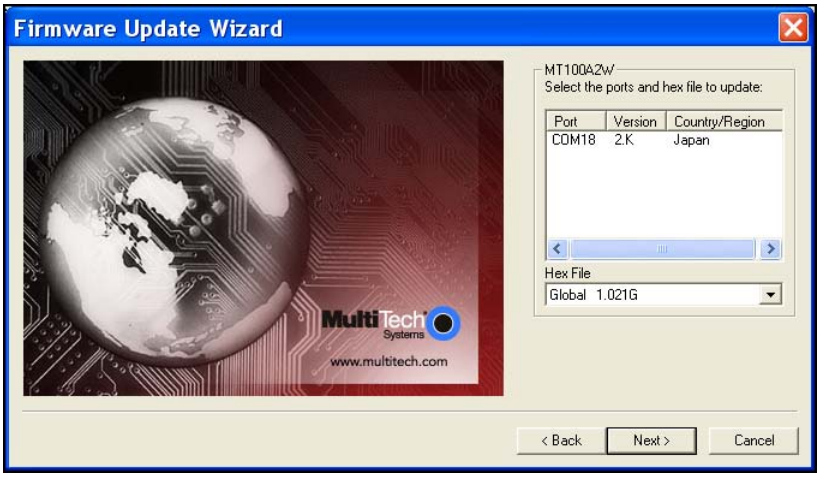
Before you begin the following procedure, read the README.TXT file extracted from the upgrade archive file. Note the file name for the new firmware (example: IYQGO21G.HEX).

WARNING: Never install an older version of firmware over a newer version. Doing this WILL DESTROY THE FLASH PROM! If the flash PROM is destroyed, the unit must be sent in for repair.

1. Run Flash Wizard by double-clicking its icon or file name, or by selecting it from the Start menu. The **Identifying Devices** dialog box is displayed as Flash Wizard locates and identifies the devices connected to your system.

Note: If the message *ERROR: No valid devices detected* is displayed, verify that the MultiConnect is turned on, that all cables are correctly and securely attached, and the correct COM port is being used.

2. Click on either the **MT100A2W** or **MT100A2W-G** and then click **Next**.
3. Click the port to be upgraded from the **Port** list, In this example it is **COM18**, and then click **Next** to proceed.



4. The **Progress** dialog box appears, showing a status bar that indicates the progress of the upgrade.

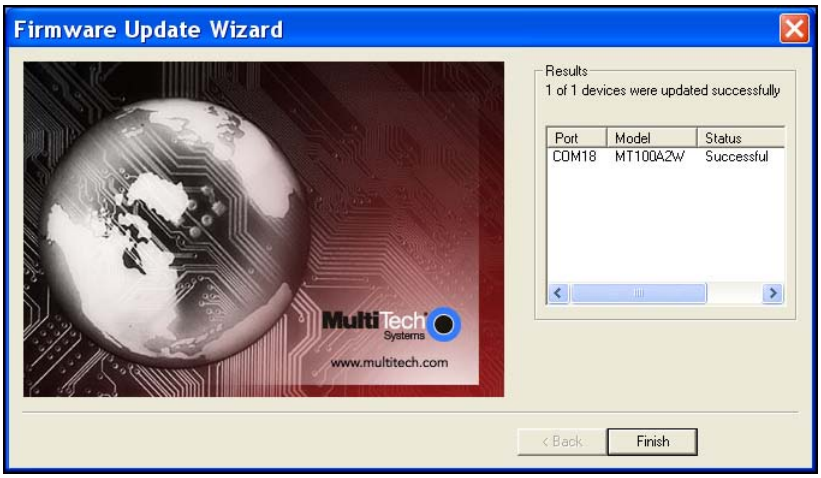
Caution: Any disruption of the program during this stage of the upgrade can cause your unit to become inoperable.

Wait for the **Next** button to become active before proceeding.

5. When the flash upgrade is complete, the message *Programming Complete* appears.

Click **Next** to continue.

6. The **Results** dialog box appears next.



Click **Finish** to exit Flash Wizard.

Restore Your Parameters

Your MultiConnect has been updated. You can now open your terminal program to reprogram your unit's parameters.

Chapter 6 – Configuration Scripts

Introduction

The following configuration scripts are provided as examples of how the MultiConnect AW can be configured using a terminal program application. The following examples use Tera Term as the terminal program application. Multi-Tech Systems does not support Tera Term terminal emulator, it is provided as an example of how a terminal emulator can be used to configure a script for the MultiConnect AW.

The examples provided show a configuration script for a GPRS Configuration, GSM Configuration, and CDMA Configuration.

GPRS Configuration Script Example

```
;
;TeraTerm Script
;
;Configuration Script for MT100A2W-G (GPRS) device
;Date: 07/14/2009
;Author: Thanh Q. Tran
;Version: 1.0 - Initial Version
;
;   12/09/2009 - Added "Debug section - Enable or Disable debug"

;NOTE: use ';' to comment out any option and its corresponding wait'OK'
;      that are not needed to be modified.
;
;      Parameters within the double quotes are separated by a single space.
;      Parameters have to be in Capital letters.
;
;      Make sure to reboot the device before running this script


;-----------------------------------------------------------------
; Determined which menu we are currently in
;-----------------------------------------------------------------
 send 10
 timeout = 1
 wait 'Please enter password to login =>' 'Enter selection =>'
 if result=1 goto LOGIN
 pause 1
 sendln ""
 goto HANDSHAKE
:LOGIN
 timeout = 0
 pause 2
 sendln "admin"                  ;Login password

:HANDSHAKE
;-----------------------------------------------------------------
; Handshake section
;-----------------------------------------------------------------

 pause 1
 sendln "C"
 wait 'Are you sure you want to start the configuration script?'
 wait 'Enter (yes/no) => '
 sendln "yes"
 wait 'ConfigMenuScript'
 pause 1

;-------------------------------------------------------------------------------------------
; Cellular port section
```

```
;-------------------------------------------------------------------------------------------

 sendln "1 A GPRS"              ; Choices for the last parameter: "GPRS", "GSM", "CDMA"
 wait 'OK'

 sendln "1 B TCPCLIENT"         ; Choices for the last parameter: "TCPCLIENT", "TELNET", "UDP", "PASSTHRU"
 wait 'OK'

 sendln "1 C OUTBOUND"          ; Choices for the last parameter: "AUTODETECT", "OUTBOUND", "INBOUND"
 wait 'OK'

 sendln "1 E 23"                ; Choice for the last parameter: Enter the LOCAL PORT for option E
 wait 'OK'

 sendln "1 F 7000"              ; Choice for the last parameter: Enter the REMOTE PORT for option F
 wait 'OK'

 sendln "1 G 254.254.254.254"   ; Choice for the last parameter: Enter the REMOTE IP address for option G
 wait 'OK'

 ;*************** Phone/IP Conversion Table ************************************************

 sendln "1 J 1 7001 7173500 254.254.254.254"    ; The last 3 parameters are: portnum phonenum IP
 wait 'OK'

 sendln "1 J 2 7002 7173500 254.254.254.254"    ; The last 3 parameters are: portnum phonenum IP
 wait 'OK'

 sendln "1 J 3 7003 7173500 254.254.254.254"    ; The last 3 parameters are: portnum phonenum IP
 wait 'OK'

 sendln "1 J 4 7004 7173500 254.254.254.254"    ; The last 3 parameters are: portnum phonenum IP
 wait 'OK'

 sendln "1 J 5 7005 7173500 254.254.254.254"    ; The last 3 parameters are: portnum phonenum IP
 wait 'OK'

 ;*********************************************************************************************

 sendln "1 K NAM"       ; for the last parameter: "NAM", "EURO"
 wait 'OK'

; sendln "1 L ???"      ; for the last parameter: Enter the APN USERNAME for option L if applicable
; wait 'OK'

; sendln "1 M ???"      ; for the last parameter: Enter the APN PASSWORD for option M if applicable
; wait 'OK'

 sendln "1 N wap.cingular"    ; last parameter: Enter the APN SERVER for option N if applicable
 wait 'OK'

; sendln "1 O 15"       ; Choice for the last parameter: Enter the Physical TimeOut in minute for option O
; wait 'OK'

; sendln "1 P ON"       ; Choices for the last parameter: "ON", "OFF"
; wait 'OK'

; sendln "1 Q 100"      ; last parameter: Enter the TCP package transmit delay in msec for option Q
; wait 'OK'

; sendln "1 R 90"       ; last parameter: Enter the radio handshake TimeOut in sec for option R
; wait 'OK'

; sendln "1 S 1234"      ; last parameter:  "DISABLE", or Enter the SIM unlock code for option S
; wait 'OK'

;-------------------------------------------------------------------------------------------
; Analog port section - In most cases, this section can be commented out
;-------------------------------------------------------------------------------------------
```

```
; sendln "2 A ATI"       ; last parameter: Enter the init string you want to send to the analog modem
; wait 'OK'

; sendln "2 B A 33600"   ; for the last parameter: "56000", "33600", "28800", "14400",
                         ; "12000", "9600", "4800", "2400", "2200", "1200", "300"
; wait 'OK'

; sendln "2 B B V34"     ; for the last parameter: "V92", V90", "V34", "V32BIS", "V32", "V22BIS",
                         ; "V22", "BELL212A", "BELL103"
; wait 'OK'

; sendln "2 B C V42_MNP" ; for the last parameter: "V42_MNP", "V42_ONLY", "MNP DIRECT_MODE", "NO_ECM"
; wait 'OK'

; sendln "2 B D V42BIS_MNP5"       ; Choices for the last parameter: "V42BIS_MNP5", "NO_COMPRESSION"
; wait 'OK'

; sendln "2 B E RTS_CTS"           ; Choices for the last parameter: "RTS_CTS", "XON_XOFF", "DISABLE"
; wait 'OK'

; sendln "2 B F ON"                ; Choices for the last parameter: "ON", "OFF"
; wait 'OK'

; sendln "2 B G 90"                ; last parameter: Enter the Analog modem handshake timeOut in seconds
; wait 'OK'

;-------------------------------------------------------------------------------------------
; System Login section
;-------------------------------------------------------------------------------------------

 sendln "3 ON"                    ; Choices for the last parameter: "ON", "OFF"
 wait 'OK'

;-------------------------------------------------------------------------------------------
; Changing System Login Password - In most cases, this section can be commented out
;-------------------------------------------------------------------------------------------

; sendln "3 C ????? ?????"         ; Choices for the last 2 parameters: old password, new password
; wait 'OK'

;-------------------------------------------------------------------------------------------
; Timers section - In most cases, this section can be commented out
;-------------------------------------------------------------------------------------------

; sendln "4 A 0"           ; Choice for the last parameter: Enter the Menu Inactivity timer in seconds
; wait 'OK'

; sendln "4 B 300"         ; Choice for the last parameter: Enter the No Signal Reset timer in seconds
; wait 'OK'

; sendln "4 C 5"           ; last parameter: Enter the Timeout Between Dialed Digits in seconds
; wait 'OK'

;-------------------------------------------------------------------------------------------
; Email section - In most cases, this section can be commented out
;-------------------------------------------------------------------------------------------

; sendln "5 A ?????"               ; Choice for the last parameter: Enter the SMTP username
; wait 'OK'

; sendln "5 B ?????"               ; Choice for the last parameter: Enter the SMTP password
; wait 'OK'

; sendln "5 C 25"                  ; Choice for the last parameter: Enter the SMTP portnum
; wait 'OK'

; sendln "5 D ON"                  ; Choices for the last parameter: "ON", "OFF"
; wait 'OK'
```

```
; sendln "5 E ?????"              ; Choice for the last parameter: Enter the SMTP server
; wait 'OK'

; sendln "5 F ?????"              ; Choice for the last parameter: Enter the SMTP domain
; wait 'OK'

; sendln "5 G ?????"              ; Choice for the last parameter: Enter the SMTP sender's name
; wait 'OK'

; sendln "5 H ?????"              ; Choice for the last parameter: Enter the SMTP sender's address
; wait 'OK'

; sendln "5 I ?????"              ; Choice for the last parameter: Enter the SMTP recipient's address
; wait 'OK'

;-----------------------------------------------------------------------------------------
; Debug section - Enable or Disable debug
;-----------------------------------------------------------------------------------------

; sendln "8 Y"                    ; Choices for the last parameter: "Y", "N"
; wait 'OK'

;-----------------------------------------------------------------------------------------
; Wireless Connection - save this option for last because if "Always On" is selected because the
; system will start the connection right away!
;-----------------------------------------------------------------------------------------

 sendln "1 D ON_DEMAND"          ; Choices for the last parameter: "ON_DEMAND", "ALWAYS_ON"
 wait 'OK'

;-----------------------------------------------------------------
; Save Configuration?
;-----------------------------------------------------------------

 sendln "SAVE"
 wait 'OK'

;-----------------------------------------------------------------
; Configuration is done
;-----------------------------------------------------------------

 sendln "FINISH"
```

GSM Configuration Script Example

```
;
;TeraTerm Script
;
;Configuration Script for MT100A2W-G (GSM) device
;Date: 07/14/2009
;Author: Thanh Q. Tran
;Version: 1.0 - Initial Version
;
;   12/09/2009 - Added "Debug section - Enable or Disable debug"


;NOTE: use ';' to comment out any option and its corresponding wait'OK'
;      that are not needed to be modified.
;
;      Parameters within the double quotes are separated by a single space.
;      Parameters have to be in Capital letters.
;
;      Make sure to reboot the device before running this script

;-----------------------------------------------------------
; Determined which menu we are currently in
;-----------------------------------------------------------
 send 10
 timeout = 1
 wait 'Please enter password to login =>' 'Enter selection =>'
 if result=1 goto LOGIN
 pause 1
 sendln ""
 goto HANDSHAKE
:LOGIN
 timeout = 0
 pause 2
 sendln "admin"                ; Login password
 pause 1

:HANDSHAKE
;-----------------------------------------------------------
; Handshake section
;-----------------------------------------------------------

 sendln "C"
 wait 'Are you sure you want to start the configuration script?'
 wait 'Enter (yes/no) => '
 sendln "yes"
 wait 'ConfigMenuScript'
 pause 1

;-------------------------------------------------------------------------------------------
; Cellular port section
;-------------------------------------------------------------------------------------------

 sendln "1 A GSM"              ; Choices for the last parameter: "GPRS", "GSM", "CDMA"
 wait 'OK'

 sendln "1 K NAM"              ; Choices for the last parameter: "NAM", "EURO"
 wait 'OK'

; sendln "1 R 90"             ; last parameter: Enter the radio handshake TimeOut in sec for option R
; wait 'OK'

; sendln "1 S 1234"            ; last parameter:  "DISABLE", or Enter the SIM unlock code for option S
; wait 'OK'

;-------------------------------------------------------------------------------------------
; Analog port section - In most cases, this section can be commented out
;-------------------------------------------------------------------------------------------
```

```
; sendln "2 A ATI"            ; last parameter: Enter the init string you want to send to the analog modem
; wait 'OK'

; sendln "2 B A 33600"        ; Choices for the last parameter: "56000", "33600", "28800", "14400",
                              ; "12000", "9600", "4800", "2400", "2200", "1200", "300"
; wait 'OK'

; sendln "2 B B V34"          ; Choices for the last parameter: "V92", V90", "V34", "V32BIS", "V32",
                              ; "V22BIS", "V22", "BELL212A", "BELL103"
; wait 'OK'

; sendln "2 B C V42_MNP"      ; Choices for the last parameter: "V42_MNP", "V42_ONLY",
                              ; "MNP DIRECT_MODE", "NO_ECM"
; wait 'OK'

; sendln "2 B D V42BIS_MNP5"  ; Choices for the last parameter: "V42BIS_MNP5", "NO_COMPRESSION"
; wait 'OK'

; sendln "2 B E RTS_CTS"      ; Choices for the last parameter: "RTS_CTS", "XON_XOFF", "DISABLE"
; wait 'OK'

; sendln "2 B F ON"           ; Choices for the last parameter: "ON", "OFF"
; wait 'OK'

; sendln "2 B G 90"           ; Last parameter: Enter the Analog modem handshake timeOut in seconds
; wait 'OK'

;-------------------------------------------------------------------------------------------
; System Login section
;-------------------------------------------------------------------------------------------

; sendln "3 OFF"              ; Choices for the last parameter: "ON", "OFF"
; wait 'OK'

;-------------------------------------------------------------------------------------------
; Changing System Login Password - In most cases, this section can be commented out
;-------------------------------------------------------------------------------------------

; sendln "3 C ????? ?????"    ; Choices for the last 2 parameters: old password, new password
; wait 'OK'

;-------------------------------------------------------------------------------------------
; Timers section - In most cases, this section can be commented out
;-------------------------------------------------------------------------------------------

; sendln "4 A 30"             ; Choice for the last parameter: Enter the Menu Inactivity timer in seconds
; wait 'OK'

; sendln "4 B 300"            ; Last parameter: Enter the No Signal Reset timer in seconds
; wait 'OK'

; sendln "4 C 5"              ; Last parameter: Enter the Timeout Between Dialed Digits timer in seconds
; wait 'OK'

;-------------------------------------------------------------------------------------------
; Email section - In most cases, this section can be commented out
;-------------------------------------------------------------------------------------------

; sendln "5 A ?????"               ; Choice for the last parameter: Enter the SMTP username
; wait 'OK'

; sendln "5 B ?????"               ; Choice for the last parameter: Enter the SMTP password
; wait 'OK'

; sendln "5 C 25"                  ; Choice for the last parameter: Enter the SMTP portnum
; wait 'OK'

; sendln "5 D ON"                  ; Choices for the last parameter: "ON", "OFF"
```

```
; wait 'OK'

; sendln "5 E ?????"              ; Choice for the last parameter: Enter the SMTP server
; wait 'OK'

; sendln "5 F ?????"              ; Choice for the last parameter: Enter the SMTP domain
; wait 'OK'

; sendln "5 G ?????"              ; Choice for the last parameter: Enter the SMTP sender's name
; wait 'OK'

; sendln "5 H ?????"              ; Choice for the last parameter: Enter the SMTP sender's address
; wait 'OK'

; sendln "5 I ?????"              ; Choice for the last parameter: Enter the SMTP recipient's address
; wait 'OK'

;-----------------------------------------------------------------------------------------------
; Debug section - Enable or Disable debug
;-----------------------------------------------------------------------------------------------

; sendln "8 Y"                    ; Choices for the last parameter: "Y", "N"
; wait 'OK'

;---------------------------------------------------------------
; Save Configuration?
;---------------------------------------------------------------

 sendln "SAVE"
 wait 'OK'

;---------------------------------------------------------------
; Configuration is done
;---------------------------------------------------------------

 sendln "FINISH"
```

CDMA Configuration Script Example

```
;
;TeraTerm Script
;
;Configuration Script for MT100A2W (CDMA) device
;Date: 07/14/2009
;Author: Thanh Q. Tran
;Version: 1.0 - Initial Version
;
;   12/09/2009 - Added "Debug section - Enable or Disable debug"

;NOTE: use ';' to comment out any option and its corresponding wait'OK'
;      that are not needed to be modified.
;
;      Parameters within the double quotes are separated by a single space.
;      Parameters have to be in Capital letters.
;
;      Make sure to reboot the device before running this script

;-----------------------------------------------------------------
; Determined which menu we are currently in
;-----------------------------------------------------------------
 send 10
 timeout = 1
 wait 'Please enter password to login =>' 'Enter selection =>'
 if result=1 goto LOGIN
 pause 1
 sendln ""
 goto HANDSHAKE
:LOGIN
 timeout = 0
 pause 2
 sendln "admin"                  ; Login password

:HANDSHAKE
;-----------------------------------------------------------------
; Handshake section
;-----------------------------------------------------------------

 pause 1
 sendln "C"
 wait 'Are you sure you want to start the configuration script?'
 wait 'Enter (yes/no) => '
 sendln "yes"
 wait 'ConfigMenuScript'
 pause 1

;-------------------------------------------------------------------------------------------------
; Cellular port section
;-------------------------------------------------------------------------------------------------

 sendln "1 B TCPCLIENT"          ; Choices for the last parameter: "TCPCLIENT", "TELNET", "UDP", "PASSTHRU"
 wait 'OK'

 sendln "1 C OUTBOUND"           ; Choices for the last parameter: "AUTODETECT", "OUTBOUND", "INBOUND"
 wait 'OK'

 sendln "1 E 23"                 ; Choice for the last parameter: Enter the LOCAL PORT for option E
 wait 'OK'

 sendln "1 F 7000"               ; Choice for the last parameter: Enter the REMOTE PORT for option F
 wait 'OK'

 sendln "1 G 254.254.254.254"    ; Choice for the last parameter: Enter the REMOTE IP address for option G
 wait 'OK'
```

```
;*************** Phone/IP Conversion Table ************************************************

sendln "1 J 1 7001 7173500 254.254.254.254"     ; The last 3 parameters are: portnum phonenum IP
wait 'OK'

sendln "1 J 2 7002 7173500 254.254.254.254"     ; The last 3 parameters are: portnum phonenum IP
wait 'OK'

sendln "1 J 3 7003 7173500 254.254.254.254"     ; The last 3 parameters are: portnum phonenum IP
wait 'OK'

sendln "1 J 4 7004 7173500 254.254.254.254"     ; The last 3 parameters are: portnum phonenum IP
wait 'OK'

sendln "1 J 5 7005 7173500 254.254.254.254"     ; The last 3 parameters are: portnum phonenum IP
wait 'OK'

;*********************************************************************************************


; sendln "1 R 90"           ; last parameter: Enter the radio handshake TimeOut in sec for option R
; wait 'OK'


;---------------------------------------------------------------------------------------------
; Analog port section - In most cases, this section can be commented out
;---------------------------------------------------------------------------------------------

; sendln "2 A ATI"          ; last parameter: Enter the init string you want to send to the analog modem
; wait 'OK'

; sendln "2 B A 33600"      ; Choices for the last parameter: "56000", "33600", "28800", "14400",
; wait 'OK'                 ; "12000", "9600", "4800", "2400", "2200", "1200", "300"

; sendln "2 B B V34"        ; Choices for the last parameter: "V92", V90", "V34", "V32BIS", "V32",
; wait 'OK'                 ; "V22BIS", "V22", "BELL212A", "BELL103"

; sendln "2 B C V42_MNP"       ; last parameter: "V42_MNP", "V42_ONLY", "MNP DIRECT_MODE", "NO_ECM"
; wait 'OK'

; sendln "2 B D V42BIS_MNP5"   ; Choices for the last parameter: "V42BIS_MNP5", "NO_COMPRESSION"
; wait 'OK'

; sendln "2 B E RTS_CTS"       ; Choices for the last parameter: "RTS_CTS", "XON_XOFF", "DISABLE"
; wait 'OK'

; sendln "2 B F ON"            ; Choices for the last parameter: "ON", "OFF"
; wait 'OK'

; sendln "2 B G 90"            ; last parameter: Enter the Analog modem handshake timeOut in seconds
; wait 'OK'

;---------------------------------------------------------------------------------------------
; System Login section
;---------------------------------------------------------------------------------------------

; sendln "3 OFF"               ; Choices for the last parameter: "ON", "OFF"
; wait 'OK'

;---------------------------------------------------------------------------------------------
; Changing System Login Password - In most cases, this section can be commented out
;---------------------------------------------------------------------------------------------

; sendln "3 C ????? ?????"         ; Choices for the last 2 parameters: old password, new password
; wait 'OK'

;---------------------------------------------------------------------------------------------
; Timers section - In most cases, this section can be commented out
;---------------------------------------------------------------------------------------------
```

```
; sendln "4 A 30"    ; Choice for the last parameter: Enter the Menu Inactivity timer in seconds
; wait 'OK'

; sendln "4 C 5"     ; Choice for the last parameter: Enter the Timeout Between Dialed Digits in seconds
; wait 'OK'

;-------------------------------------------------------------------------------------------
; Email section - In most cases, this section can be commented out
;-------------------------------------------------------------------------------------------

; sendln "5 A ?????"              ; Choice for the last parameter: Enter the SMTP username
; wait 'OK'

; sendln "5 B ?????"              ; Choice for the last parameter: Enter the SMTP password
; wait 'OK'

; sendln "5 C 25"                 ; Choice for the last parameter: Enter the SMTP portnum
; wait 'OK'

; sendln "5 D ON"                 ; Choices for the last parameter: "ON", "OFF"
; wait 'OK'

; sendln "5 E ?????"              ; Choice for the last parameter: Enter the SMTP server
; wait 'OK'

; sendln "5 F ?????"              ; Choice for the last parameter: Enter the SMTP domain
; wait 'OK'

; sendln "5 G ?????"              ; Choice for the last parameter: Enter the SMTP sender's name
; wait 'OK'

; sendln "5 H ?????"              ; Choice for the last parameter: Enter the SMTP sender's address
; wait 'OK'

; sendln "5 I ?????"              ; Choice for the last parameter: Enter the SMTP recipient's address
; wait 'OK'

;-------------------------------------------------------------------------------------------
; Debug section - Enable or Disable debug
;-------------------------------------------------------------------------------------------

; sendln "8 Y"                    ; Choices for the last parameter: "Y", "N"
; wait 'OK'

;-------------------------------------------------------------------------------------------------------
; Wireless Connection - save this option for last because if "Always On" is selected, the system
; will start the connection right away!
;-------------------------------------------------------------------------------------------------------

 sendln "1 D ON_DEMAND"           ; Choices for the last parameter: "ON_DEMAND", "ALWAYS_ON"
 wait 'OK'

;-------------------------------------------------------------
; Save Configuration?
;-------------------------------------------------------------

 sendln "SAVE"
 wait 'OK'

;-------------------------------------------------------------
; Configuration is done
;-------------------------------------------------------------

 sendln "FINISH"
```

Appendix A – Regulatory Compliance

CE

EMC, Safety, and R&TTE Directive Compliance

The CE mark is affixed to this product to confirm compliance with the following European Community Directives:

Council Directive 2004/108/EC of 31 December 2004 on the approximation of the laws of Member States relating to electromagnetic compatibility;

and

Council Directive 2006/95/EC of 12 December 2006 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits;

and

Council Directive 1999/5/EC of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity.

International Modem Restrictions

Some dialing and answering defaults and restrictions may vary for international modems. Changing settings may cause a modem to become non-compliant with national telecom requirements in specific countries. Also note that some software packages may have features or lack restrictions that may cause the modem to become non-compliant.

FCC Part 15 Class B Statement

This equipment has been tested and found to comply with the limits for a **Class B** digital device, pursuant to 47 CFR Part 15 regulations. The stated limits in this regulation are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Plug the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the 47 CFR rules. Operation of this device is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference that may cause undesired operation.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Industry Canada

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Reglement Canadien sur le matériel brouilleur

Appendix B - Waste Electrical and Electronic Equipment (WEEE) Statement

July, 2005

The WEEE directive places an obligation on EU-based manufacturers, distributors, retailers and importers to take-back electronics products at the end of their useful life. A sister Directive, ROHS (Restriction of Hazardous Substances) complements the WEEE Directive by banning the presence of specific hazardous substances in the products at the design phase. The WEEE Directive covers all Multi-Tech products imported into the EU as of August 13, 2005. EU-based manufacturers, distributors, retailers and importers are obliged to finance the costs of recovery from municipal collection points, reuse, and recycling of specified percentages per the WEEE requirements.

Instructions for Disposal of WEEE by Users in the European Union

The symbol shown below is on the product or on its packaging, which indicates that this product must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of their waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the product.

Appendix C – Environmental Information

Restriction of the Use of Hazardous Substances (RoHS)

Multi-Tech Systems, Inc.
Certificate of Compliance
2002/95/EC

Multi-Tech Systems, Inc. confirms that this product now complies with the chemical concentration limitations set forth in the directive **2002/95/EC** of the European Parliament (Restriction Of the use of certain Hazardous Substances in electrical and electronic equipment - **RoHS**)

These Multi-Tech Systems, Inc. products do not contain the following banned chemicals:

Lead, [Pb] < 1000 PPM

Mercury, [Hg] < 1000 PPM

Hexavalent Chromium, [Cr+6] < 1000 PPM

Cadmium, [Cd] < 100 PPM

Polybrominated Biphenyl, [PBB] < 1000 PPM

Polybrominated Diphenyl Ether, [PBDE] < 1000 PPM

Moisture Sensitivity Level (MSL) =1

Maximum Soldering temperature = 260C (wave only)

Notes:

1. Lead usage in some components is exempted by the following RoHS annex; therefore, higher lead concentration could be found.
   a. Lead in high melting temperature type solders (i.e., tin-lead solder alloys containing more than 85% lead).
   b. Lead in electronic ceramic parts (e.g., piezoelectronic devices).
2. Moisture Sensitivity Level (MSL) – Analysis is based on the components/material used on the board.

依照中国标准的有毒有害物质信息

根据中华人民共和国信息产业部 (MII) 制定的电子信息产品 (EIP) 标准－中华人民共和国《电子信息产品污染控制管理办法》（第 39 号），也称作中国 RoHS，下表列出了 Multi-Tech Systems Inc. 产品中可能含有的有毒物质 (TS) 或有害物质 (HS) 的名称及含量水平方面的信息。

成分名称	有害/有毒物质/元素					
	铅 (PB)	汞 (Hg)	镉 (CD)	六价铬 (CR6+)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板	O	O	O	O	O	O
电阻器	X	O	O	O	O	O
电容器	X	O	O	O	O	O
铁氧体磁环	O	O	O	O	O	O
继电器/光学部件	O	O	O	O	O	O
IC	O	O	O	O	O	O
二极管/晶体管	O	O	O	O	O	O
振荡器和晶振	X	O	O	O	O	O
调节器	O	O	O	O	O	O
电压传感器	O	O	O	O	O	O
变压器	O	O	O	O	O	O
扬声器	O	O	O	O	O	O
连接器	O	O	O	O	O	O
LED	O	O	O	O	O	O
螺丝、螺母以及其它五金件	X	O	O	O	O	O
交流-直流电源	O	O	O	O	O	O
软件/文档 CD	O	O	O	O	O	O
手册和纸页	O	O	O	O	O	O
底盘	O	O	O	O	O	O

X 表示所有使用类似材料的设备中有害/有毒物质的含量水平高于 SJ/Txxx-2006 限量要求。

O 表示不含该物质或者该物质的含量水平在上述限量要求之内。

REACH Statement

Registration of Substances:

After careful review of the legislation and specifically the definition of an “article” as defined in EC Regulation 1907/2006, Title II, Chapter 1, Article 7.1(a)(b), it is our current view Multi-Tech Systems, Inc. products would be considered as “articles”. In light of the definition in § 7.1(b) which requires registration of an article only if it contains a regulated substance that “is intended to be released under normal or reasonable foreseeable conditions of use,” our analysis is that Multi-Tech Systems, Inc. products constitute nonregisterable articles for their intended and anticipated use.

Substances of Very High Concern (SVHC):
Per the candidate list of Substances of Very high Concern (SVHC) published October 28, 2008 we have reviewed these substances and certify the Multi-Tech Systems, Inc. products are compliant per the EU “REACH” requirements of less than 0.1% (w/w) for each substance.

If new SVHC candidates are published by the European Chemicals Agency, and relevant substances have been confirmed, that exceeds greater than 0.1% (w/w), Multi-Tech Systems, Inc. will provide updated compliance status.

Multi-Tech Systems, Inc. also declares it has been duly diligent in ensuring that the products supplied are compliant through a formalized process which includes collection and validation of materials declarations and selective materials analysis where appropriate. This data is controlled as a part of a formal quality system and will be made available upon request.