# **DRCEII** G2150I User's Manual

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www.moxa.com/product



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## **OnCell G2150I User's Manual**

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# 1 Introduction

MOXA's OnCell G2150I industrial GSM/GPRS Modem gives you an easy way to connect your remote RS-232/422/485 serial devices to the GSM and GPRS mobile networks.

The following topics are covered in this chapter:

- □ Overview
- Package Checklist
- Product Features
- Product Specifications
- **Gerial Port Pin Assignments**

## Overview

The OnCell G2150I is an isolated quad-band GSM/GPRS modem that transmits data and short messages (SMS) over GSM/GPRS mobile networks. The G2150I can be used to improve the efficiency of your maintenance and communication, and does not require a high level of technical knowledge to operate. Separate RS-232 and RS-422/485 interfaces are built in, each with 2.5 KV RMS isolation for one minute and 15 KV ESD serial line protection. The two serial interfaces make the OnCell G2150I ideal for attaching all kinds of devices, such as stand-alone controllers, PC COM ports, and multi-drop electric meters. The enclosure is IP30-rated and can be mounted on a DIN-rail or on the wall. The unit has a 12 to 48 VDC power input, allowing different types of field power sources to be attached. An array of LED indicators provides ample status information, including signal strength and current mode of communication, such as GSM CSD (circuit-switch data mode) mode or GPRS.

## Package Checklist

Each OnCell G2150I GSM/GPRS Modem is shipped with the *Standard Accessories* listed below. The *Optional Accessories* can be purchased separately.

**Standard Accessories** 

- Document & Software CD
- 0 dBi mini magnetic SMA antenna
- Power jack to terminal block cable
- Product Warranty Statement
- Quick Installation Guide

NOTE: Please notify your sales representative if any of the above items are missing or damaged.

#### **Optional Accessories**

- Power Adaptor
- High-gain antenna: Omni 1 dBi rubber SMA antenna
- High-gain antenna: 3 dBi/25 cm, mini magnetic SMA, 3 meters
- High-gain antenna: 5 dBi/37 cm, magnetic mount SMA, 3 meters
- CBL-F9M9-150 (male DB9 to female DB9 RS-232 cable, 100 cm)
- CBL-F9M9-20 (male DB9 to female DB9 RS-232 cable, 20 cm)
- UPort 1110 (1-port RS-232 USB to Serial Adaptor)

## Product Features

- Quad-band 900/1800, 850/1900 MHz GSM/GPRS
- GPRS Class 10
- Circuit-Switched Data mode supporting up to 14,400 bps
- SMS (short message) support
- SMS Tunnel support
- Seperate RS-232 and RS-422/485 serial interfaces
- 2.5 KV RMS for 1 minute isolation for all serial signals
- 15 KV ESD serial line protection
- LED indicators for Cellular Status / Signal Level
- DIN-Rail or Wall Mountable IP30 enclosure

## **Product Specifications**

### **Cellular Communication**

Standard Compliance	GSM (Global Service for Mobile) and GPRS (General Packet Radio Service)
Radio Band Selection	Quad-band 850 MHz, 900 MHz, 1800 MHz, and 1900 MHz
Tx Power	1-Watt GSM1800/1900, 2-Wattt EGSM 900/ GSM 850
GPRS Multi-slot Class	Class 10, Coding Schemes: CS1 to CS4
GPRS Terminal Device Class	Class B (no simultaneous GPRS/CSD connect possible)
CSD Data Transmission Rate	Up to 14,400 bps
SMS	Point-to-point Text/PDU: Mobile Originated (MO) and Mobile Terminated (MT Cell Broadcast: in accordance with GSM 07.05)
SIM Control	SIM Control: 3V/1.8V Interface
Antenna Connector	SMA
Antenna	0 dBi/10cm, mini magnetic SMA, 3 meters

	GSM 850	EGSM 900	
Frequency RX	869 to 894 MHz	925 to 960 MHz	
Frequency TX	824 to 849 MHz	880 to 915 MHz	
<b>RF</b> Power Stand	2W at 12.5% duty cycle	2W at 12.5% duty cycle	
Impedance	50 ohms		
VSWR	< 2		
Typical Radiated Gain	0 dBi on azimuth plane		

	GSM 1800	GSM 1900	
Frequency RX	1805 to 1880 MHz	1930 to 1990 MHz	
Frequency TX	1710 to 1785 MHz	1850 to 1910 MHz	
<b>RF Power Stand</b>	1W at 12.5% duty cycle	1W at 12.5% duty cycle	
Impedance	50 ohms		
VSWR	< 2		
Typical Radiated Gain	0 dBi on azimuth plane		

#### **Serial Port**

No. of ports	1
Interface	Separate RS-232 and RS-422/485 interfaces
Port Type	RS-232: female DB9
	RS-422/485: 5-pin Terminal Block

#### **Serial Communication Parameters**

Parity	None, Even, Odd, Space, Mark
Data Bits	7,8
Stop Bit(s)	1, 2 (parity = None)
Flow Control	RTS/CTS, None
Transmission Speed	300 bps to 115.2 Kbps

RS-422/485 Termination RS-422/485 Pull High/Low Isolation Serial Line Protection	<ul> <li>120Ω (DIP switch)</li> <li>150 KΩ, 1 KΩ (DIP switch)</li> <li>2.5 KV RMS for 1 minute (all signals)</li> <li>15 KV ESD</li> </ul>
<b>Power Requirements</b>	
Power Input Power Consumption	12-48 VDC Idle: 50 mA @ 12V
	Data link: 300-900 mA (peak) @ 12V
Mechanical Specification	ns
Material Dimensions (W x D x H) Weight:	PC+ABS, IP30 protected 27 x 123 x 79 mm 150 ±5g
<b>Environment</b> Operating Temperature Storage Temperature	-20 to 55°C (32 to 131°F), 5 to 95%RH -40 to 75°C (-4 to 167°F), 5 to 95%RH
<b>Regulatory Approvals</b> CE, FCC	Class A
<b>Limited Warranty</b> Warranty	5 years

## **Serial Port Pin Assignments**

	<b>K</b> 5-252/ <b>4</b> 22/ <b>4</b> 05 1 mouts				
RS-232 Port (Female DB9)	Pin	RS-232	RS-422	RS-485 (4-wire)	RS-485 (2-wire)
54321	1	DCD	TxD+	TxD+	
	2	TxD	TxD-	TxD-	
	3	RxD	RxD+	RxD+	Data + (B)
9876	4	DSR	RxD-	RxD-	Data – (A)
DO 400/405 Devt	5	GND			
RS-422/485 Port (Terminal Block)	6	DTR			
	7	CTS			
	8	RTS			
$\bigcirc \boxed{1} \boxed{1} \boxed{5}$					

## RS-232/422/485 Pinouts

# **2** Getting Started

This chapter includes instructions on how to install the OnCell G2150I.

The following topics are covered in this chapter:

- **D** Product Characteristics
- **Dimensions**

#### **Connecting the Hardware**

- Wiring Requirements
- SIM Card Insellation
- > DIN-Rail, Wall Mounting
- > Connecting the Antenna
- Connecting the Power
- Connecting to a Serial Device
- LED Indicators

## **Product Characteristics**



## Dimensions



## **Connecting the Hardware**

This section describes how to connect the OnCell G2150I GSM/GPRS modem to a host PC or serial devices for first time testing purposes. We cover Wiring Requirements, SIM Installation, DIN/Wall Mounting, Connecting the Antenna, Connecting the Power, Connecting to a Serial Device, and LED Indicators.

#### Wiring Requirements



## ATTENTION

#### Safety First!

Be sure to disconnect the power cord before installing and/or wiring your device. The OnCell G2150I should be secured at one location.

#### Wiring Caution!

Calculate the maximum possible current in each power wire and common wire. Observe all electrical codes dictating the maximum current allowable for each wire size. If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.

#### **Temperature Caution!**

Be careful when handling the device. When plugged in, the device's internal components generate heat, and consequently the casing may feel hot to the touch.

You should also pay attention to the following guidelines:

• Use separate paths to route wiring for power and devices. If power wiring and device wiring paths must cross, make sure the wires are perpendicular at the intersection point.

**NOTE**: Do not run signal or communication wiring and power wiring in the same wire conduit. To avoid interference, wires with different signal characteristics should be routed separately.

- Use the type of signal transmitted through a wire to determine which wires should be kept separate. The rule of thumb is that wiring that shares similar electrical characteristics can be bundled together.
- Keep input wiring and output wiring separate.
- Where necessary, it is advisable to label the wiring to all devices in the system.

#### SIM Card Installation

In order to protect the SIM card, the SIM card slot is located inside the OnCell G2150I's casing. You will need to unscrew and remove the outer SIM card cover before installing or removing the SIM card.



#### SIM Cover

Follow these steps to remove or install the SIM card:

- 1. Remove the screw holding the outer SIM card cover.
- 2. Push the outer SIM card cover to the left to remove it.
- 3. Push the SIM card holder to the left, and then rotate it upwards to expose the SIM crad slot.
- 4. (a) Remove the SIM card from the SIM card slot, or(b) Insert the SIM card into the SIM card slot.
- 5. Reverse the above steps to replace the outer SIM card cover.

**NOTE** The SIGNAL LEDs on the front panel provide a convenient way of checking if the SIM card is installed properly. If the antenna is installed and the network is operating normally, then at least one of the three SIGNAL LEDs should be illuminated at all times. If none of the LEDs are illuminated, then the SIM card may not be installed properly. This is because the PIN code is stored on the SIM card; if the PIN code cannot be accessed, then the modem will not be accessible from over the network.

## **DIN-Rail**, Wall Mounting

The OnCell G2150I's built-in mounting appendages are suitable for mounting the modem to a flat wall or installing it on a DIN-rail. Follow the intructions in the figures below to install the OnCell G2150 on a DIN-rail.

**NOTE** Before mounting the OnCell G2150I, we strongly recommend that you first remove the antenna connection.



## NOTE Grounding the OnCell G2150I The OnCell G2150I has two grounding points. One point is one pin of the 3-pin Power Terminal block, and the other point is under the bottom DIN-rail appendage. DIN-Rail Mounted: In this case, you should ground the DIN-rail itself, since the grounding point under the modem's bottom DIN-rail appendage will be in direct with the DIN-rail. Be sure to ground the DIN-rail before connecting the modem to the DIN-rail. Wall or Panel Mounted: In this case, run a ground wire from the right-most pin of the 3-pin power terminal block. Be sure to connect the ground wire before connecting

3-pin power terminal block. Be sure to connect the ground wire before connecting devices to the modem.

Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI).



Follow the intructions below to attach the OnCell G2150 to a wall:

#### Connecting the Antenna



## ATTENTION

You should 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.

Switch OFF the OnCell G2150I GSM/GPRS Modem in the following circumstances:

- When in an aircraft.
- When around gasoline or diesel-fuel pumps and before filling your vehicle with fuel.
- When 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, and where blasting operations are in progress.

There may be a hazard associated with the operation of the OnCell G2150I close to inadequately protected personal medical devices such as hearing aids and pacemakers. Consult the manufacturer of the medical device to determine if it is adequately protected.

Operation of the OnCell G2150I GSM/GPRS Modem close to other electronic equipment may also cause interference if the equipment is inadequately protected. Observe any warning signs and manufacturers' recommendations.

All OnCell G2150I GSM/GPRS Modems are shipped with a 0 dBi mini magnetic SMA antenna. The 3-meter patch cords are ideal for installing the modem in places such as a metal cabinet or a vending machine.



## Connecting the Power

The 3-pin power terminal block allows the OnCell G2150I to be attached to various kinds of field power sources that support 12 to 48 VDC. Connect the power wire to the OnCell G2150's power jack. The "PWR" LED will show a solid green color once the system is ready.



To use an AC power source instead of the DC power supply, use the "Power Jack to TB Cable" accessory that came with the modem. Other types of AC power adaptors that can be used with the OnCell G2150I are listed on MOXA's website at the following url:

http://www.moxa.com/product/Software Accessories.htm#Power



### ATTENTION

Be sure to install the antenna first before connecting the power to the OnCell G2150I. Operation which does not follow the procedure may damage the product.

#### Connecting to a Serial Device

The separate built-in RS-232 and RS-422/485 serial interfaces come with two types of protection: (1) a high quality 2.5 KV RMS for 1 min isolation, and (2) 15 KV ESD serial line protection. Providing this type of protection makes the OnCell G2150I ideal for attaching to different devices, such as a stand-alone controller, a PC's COM port, or even multi-drop electric meters.

The female RS-232 port is designed to match the pinouts of a standard D-shell connector. A direct DB9M-9F cable, such as MOXA's CBL-F9M9-150 (100 cm) or CBL-F9M9-20 (20 cm), can be used to connect a host computer or serial device.



RS-485 Multi-dropped devices

The 5-pin terminal block on the bottom panel of the OnCell G2150I provides the necessary wiring for RS-422, 2-wire RS-485, and 4-wire RS-485 connections. In addition, the OnCell G2150I's DIP switches can be used to activate the built-in 120 ohm terminal resistor if required. Pull high/low resistor adjustments are also allowed.



## **DIP Switches**

There are 6 DIP switches located on the modem's bottom panel.

- DIP switches 1, 2, and 3 determine which Serial Interface will be used.
- DIP switch 4 is used to enable or disable the Termination Resistor.
- DIP switches 5 and 6 are used to select the value of the Pull High/Low Resistor.

#### **Serial Interface**

	SW1	SW2	SW3
RS-232	ON	OFF	OFF
RS-422	OFF	OFF	OFF
4W RS-485	OFF	ON	OFF
2W RS-485	OFF	ON	ON

#### **Status of Termination Resistor**

	SW4
Terminator Enabled	ON
Terminator Disabled	OFF

#### Value of Pull High/Low Resistor

	SW5	SW6
1 ΚΩ		
1 K12	ON	ON
150 ΚΩ		
120 K77	OFF	ON

## **LED** Indicators

SIGN

GSM

		Name	Color	Function
AL		SIGNAL (3 LEDS)	Green	Signal Level (at least 2 LEDs must be illuminated for data transmission)
O PWR		PWR	Green	Activation of DC Power
GSM		Amber	Steady ON: GSM CSD Connected Blinking: SMS Tunnel is enabled (registered to a carrier)	
		GPRS	Amber	GPRS Connected
		DATA	Green	Serial Tx/Rx

Number of Illuminated Signal LEDs	Type of Signal that Can be transmitted
None	No signal, or SIM card is not installed properly
1 LED	Weak or insufficient (SMS only)
2 LEDs	Average (good for GSM CSD and GPRS connections)
3 LEDs	Exceptional (good for GSM CSD and GPRS connections)



# **OnCell Configurator**

Using AT commands is the most general way of configuring a modem. However, MOXA OnCell Configurator gives users an easy and convenient means of configuring the modem without needing to use AT Commands.

This chapter covers the following topics:

- **OnCell Configurator Overview**
- □ Installing MOXA OnCell Configurator
- □ Launching OnCell Configurator
- **Configuring Serial Line Setting and Device Name**
- **Configuring the PIN Setting**
- **Configuring the Radio Band**
- □ Initial Strings
- **Given Saving the Configuration Profile**
- □ Applying Modem Settings
- **D** Retrieving the Modem Settings
- □ Loading a Profile
- □ Signal Strength Monitor
- **Upgrading the Firmware**
- **Getting Modem Defaults**

## **OnCell Configurator Overview**

**OnCell Configurator** is a PC-based configuration software tool for managing and configuring OnCell G2150I modems. With a full graphics mode and Windows-based environment, even first time users will find it easy to learn how to use this new software tool. **OnCell Configurator** can be used to configure the general phone settings and modes for auto dial-out parameters, but without needing to look up the appropriate AT commands. **OnCell Configurator** provides a big improvement over the traditional configuration method that often required frequent checking of a thick AT command reference manual.

**OnCell Configurator** not only makes configuration easier, but also makes it convenient to carry out "mass deployment" and "pre-configuration," but without the need to use AT commands. The most important benefits of using the "OnCell Configurator" utility are:

- 1. The installation wizard provides a step-by-step installation procedure for setting up the OnCell G2150I.
- 2. The configuration profile can be easily stored, and then replicated to other modems.



## Installing MOXA OnCell Configurator

The following procedures provide the instructions of installation the MOXA OnCell Configurator utility. After installation, users can easily use the build-in Configurator, Wizard amd MOXA Terminal Emulator for further operations.

**NOTE** MOXA OnCell Configurator can be used with Windows 2000/XP/2003/Vista operating systems.

- 1. The installation file **OnCell\_Configurator\_Install\_1.0.exe** is located in the /Configurator/ directory of the Document and Software CD.
- 2. Double click "OnCell\_Configurator\_Install\_V1.0.exe" to start the installation.



3. Click **Next** to proceed.

🐔 Setup - OnCell Configurat	tor
	Welcome to the OnCell Configurator Setup Wizard
	This will install OnCell Configurator on your computer.
	It is recommended that you close all other applications before continuing.
	Click Next to continue, or Cancel to exit Setup.
为	
	[ <u>N</u> ext > ] Cancel

4. Choose the I accept the agreement option and then click Next.

🐔 Setup - OnCell Configurator	_ 🗆 🗙
License Agreement Please read the following important information before continuing.	
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.	
End User License Agreement	<b>_</b>
Before installing the OnCell G2150I, you must agree to Moxa's End User Product License Agreement. Please read through this license agreement carefully. If you do not agree to them, please DO NOT install the software.	
Subject to the following terms and conditions, Moxa Technologies Co., Ltd. (Moxa) grants to you (User) a non-exclusive license to use the enclosed software	•
<ul> <li>I accept the agreement</li> <li>I do not accept the agreement</li> </ul>	
< <u>B</u> ack <u>N</u> ext>	Cancel

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5. Click **Next** to proceed.

🐔 Setup - OnCell Configurator	
Information Please read the following important information before continuing.	
When you are ready to continue with Setup, click Next.	
OnCell G2150I Ver 1.0	
The OnCell Configurator for Moxa G2150I setup. To install the package under Windows 2000/XP/2003/VISTA, simply run \OnCell_Configurator.exe in the OnCell G2150I software diskette.	
< <u>B</u> ack <u>N</u> ext>	Cancel

6. Click **Next**, or browse to a proper folder to proceed.

🐔 Setup - OnCell Configurator			
Select Destination Location Where should OnCell Configurator be installed	17		
Setup will install OnCell Configurator	into the followin	g folder.	
To continue, click Next. If you would like to se	elect a different	folder, click Brow	ise.
C:\Program Files\Moxa\OnCell		Bī	owse
At least 2.4 MB of free disk space is required.			
[	< <u>B</u> ack	<u>N</u> ext >	Cancel

7. Click **Next** to proceed.

🎼 Setup - OnCell Configurator
Select Start Menu Folder Where should Setup place the program's shortcuts?
Setup will create the program's shortcuts in the following Start Menu folder.
To continue, click Next. If you would like to select a different folder, click Browse.
OnCell Configurator Browse
< <u>B</u> ack <u>N</u> ext > Cancel

8. Click **Next** to proceed.

🐔 Setup - OnCell Configurator	
Select Additional Tasks Which additional tasks should be performed?	
Select the additional tasks you would like Setup to perform while installing OnCell Configurator, then click Next.	
Additional icons:	
Create a <u>desktop icon</u>	
< <u>B</u> ack <u>N</u> ext >	Cancel

9. Click **Install** to start the software installation.

🐔 Setup - OnCell Configurator	<u>- I X</u>
Ready to Install Setup is now ready to begin installing OnCell Configurator on your computer.	
Click Install to continue with the installation, or click Back if you want to review or change any settings.	r
Destination location: C:\Program Files\Moxa\OnCell	<u> </u>
Start Menu folder: OnCell Configurator	
x	►
< <u>B</u> ack	Cancel

10. Wait until the installation is finished.

🐔 Setup - OnCell Configurator	_ 🗆 🗙
Installing Please wait while Setup installs OnCell Configurator on your computer.	
Extracting files C:\Program Files\Moxa\OnCell\Utility\Pcomm.dll	
	Cancel

11. Click **Next** to proceed.

🐔 Setup - OnCell Configurator	
Information Please read the following important information before continuing.	
When you are ready to continue with Setup, click Next.	
Product: OnCell G2150I Version: 1.0 Date: 05/05/2007 Company: Moxa Technologies Co., Ltd Support Platform: Windows 2000, Windows XP, Windows XP, Windows XP, Windows XP x64 Edition, Windows 2003 x64 Edition.	
<u>N</u> ext >	

12. Click Finish.

🐔 Setup - OnCell Configurat	or III
	Completing the OnCell Configurator Setup Wizard Setup has finished installing OnCell Configurator on your computer. The application may be launched by selecting the installed icons. Click Finish to exit Setup.
	[ <u> </u>

## Launching OnCell Configurator

1. Click on Start  $\rightarrow$  All Programs  $\rightarrow$  OnCell Configurator  $\rightarrow$  OnCell Configurator.



- 2. Select one of the three options when starting OnCell Configurator
  - 1. Create a New Configuration File from Configurator
  - 2. Create a new Configuration File from Wizard
  - 3. Load an existing Configuration file to Configurator

🛃 OnCell Configurator	×
Welcome to the OnCell Wizard Use this wizard to set up your OnCell G2100 cellular modem.	
Create a Configuration File Create a new Configuration File from Configurator Create a new Configuration File from Wizard Load a Configuration File C Load an existing Configuration File to Configurator	
Next	Cancel

Regardless of whether you use **Configurator** or the **Wizard**, the settings will not be activate until you click the Apply button.



## **Configuring Serial Line Setting and Device Name**

The following instructions describe how to configure the serial communication parameters using **Configurator**.

- 1. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Make sure the RS-232 port of the OnCell G2150I GSM/GPRS modem is connected, and DIP Switch 1 is set to **ON**.
- 2. Start the OnCell Configurator utility, and select **Create a new Configuration File from Configurator**.

🛃 OnCell Configurator	×
Welcome to the OnCell Wizard	
Use this wizard to set up your OnCell G2100 cellular modem.	
Create a Configuration File	
Create a new Configuration File from Configurator	
C Create a new Configuration File from Wizard	
Load a Configuration File	
C Load an existing Configuration File to Configurator	
Car	ncel

#### OnCell G2150I User's Manual

3. Click the Basic Setting tab, click on **Modify**, and then configure the serial device parameters. Enter the device name in the text input box.

1	🛃 OnCell Configurator				
F	ile <u>T</u> erminal	Emulator <u>H</u> elp			
Π	Basic Setting	GSM Setting SMS Tu	Inn	el Init. Strings	
	Serial Interfa			-Device Name	Apply
	Baud Rate	115200 💌		MOXA TECHNOLOGY	Get Settings
	Flow Control	None			((010)) Sig. Strength
	Data Bits	8		SIM Card PIN Setup	
	Stop Bits	1		If your SIM card requires a PIN, enter it here:	Upgrade FW
	Parity	None			Set Defaults
	🗖 Disable	Echo			



## ATTENTION

- 1. Use the command **AT+IPR=0** to enable **Autobauding**. Refer to Chapter 4 for details.
- 2. **Autobauding** and the +++ escape command only work with 8n1 and e71 settings. Using other settings will disable these functions.
- 3. Setting stop bits = 2 only works when setting parity = **none**.
- 4. Default parameters: 115200, 8n1, RTS/CTS for flow control

The following procedures provide the instructions for configuring the serial communication parameters using **Wizard**.

1. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Make sure the RS-232 port of the OnCell G2150I GSM/GPRS modem is connected and DIP Switch 1 is set to **ON**.

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2. Start the OnCell Configurator utility, and select the **Create a new Configuration File from Wizard** option.

🛃 OnCell Configurator	×
Welcome to the OnCell Modem Wizard	
Use this wizard to set up your OnCell G2100 cellular modem.	
Create a Configuration File	
C Create a new Configuration File from Configurator	
Create a new Configuration File from Wizard	
Load a Configuration File	
C Load an existing Configuration File to Configurator	
Next Canc	el

3. On the **Configure the Serial Interface** page, click **Modify** and configure the serial device settings. Enter the device name in the text input box.

	rator Serial Interface communication parameters		×
Serial Interface Modify Baud Rate Flow Control Data Bits Stop Bits Parity	115200	Device Name	
		Back Next C	ancel

## **Configuring the PIN Setting**

The following instructions explain how to configure the PIN code using Configurator.

- 1. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Make sure the RS-232 port of the OnCell G2150I GSM/GPRS modem is connected and DIP Switch 1 is set to **ON**.
- 2. Start the OnCell Configurator utility and select the **Create a new Configuration File from Configurator** option.

🛃 OnCell Configurator	×
Welcome to the OnCell Wizard	
Use this wizard to set up your OnCell G2100 cellular modem.	
Create > Configuration File	
Create a new Configuration File from Configurator	
C Create a new Configuration File from Wizard	
Load a Configuration File	
C Load an existing Configuration File to Configurator	
Codu di revisiti gi coninguration nile to coninguration	
Ca	ncel

3. Click the Basic Setting tab and enter the correct PIN in the text input box.

🛃 OnCell Configurator					
<u>File Terminal Emulator H</u> elp					
Basic Setting	GSM Setting SMS Tur	nnel   Init. Strings			
Serial Interfa	115200	Device Name	Apply  Get Settings		
Data Bits Stop Bits	8	-SIM Card PIN Setup	Sig. Strength		
Parity	None	enter it here: 0000	Set Defaults		



## ATTENTION

Once the correct PIN is entered using the **AT+ CPIN** command or OnCell Configurator, the system (firmware V1.2 or above) will activate the **Automatic PIN Entry** function. This function will store the current PIN in its memory, and then enter the PIN automatically each time the system boots up. If the SIM card does not match the current PIN, the **Automatic PIN Entry** function will be deactivated.

To activate the **Automatic PIN Entry** function again, use the **AT+ CPIN** command or OnCell Configurator to enter the correct PIN.

To disable the Automatic PIN Entry once and for all, use the **AT\*USEPIN=0** command. Refer to the **G2150I\_AT\_Commands.pdf** file in the /AT\_Commands/ folder of the Document and Software CD.

The following instructions show how to configure the PIN code using Wizard.

- 1. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Make sure the RS-232 port of the OnCell G2150I GSM/GPRS modem is connected and DIP Switch 1 is set to **ON**.
- 2. Start the OnCell Configurator utility and select the **Create a new Configuration File from Wizard** option.

OnCell Configurator     Welcome to the OnCell Modem Wizard     Use this wizard to set up your OnCell G2100 cellular modem.	X
Create a Configuration File	
Create a new Configuration File from Wizard      Load a Configuration File	
C Load an existing Configuration File to Configurator	
NextCano	el

3. On the **PIN and Band Management** page, enter the correct PIN in the text input box.

🚅 OnCell Configurator	×
PIN and Band Management	
SIM Card PIN Setup If your SIM card requires a PIN, enter it here: 0000	Select Band © 850MHz © 900MHz © 1800MHz © 1900MHz © 850/1900MHz © 900/1800MHz © 900/1900MHz
	Back Next Cancel

## **Configuring the Radio Band**

The following instructions illustrate how to configure the radio band using Configurator.

- 1. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Make sure the RS-232 port of the OnCell G2150I GSM/GPRS modem is connected and DIP Switch 1 is set to **ON**.
- 2. Start the OnCell Configurator utility and select the **Create a new Configuration File from Configurator**.

🛃 OnCell Configurator	×
Welcome to the OnCell Wizard	
Use this wizard to set up your OnCell G2100 cellular modem.	
Create a configuration File	
Create a new Configuration File from Configurator	>
C Create a new Configuration File from Wizard	
Load a Configuration File	
C Load an existing Configuration File to Configurator	
[Next]	Cancel

- 🚅 OnCell Configurator File <u>Terminal Emulator</u> <u>H</u>elp Basic Setting GSM Setting SMS Tunnel Init. Strings Apply GSM Connection DTR Drop Action Ignore DTR Enable Auto-answer on Command Mode 14 Get Settings Rings 🔿 Hang Up Sig. Strength GSM Protocol Select Band GSM Autobauding 850MHz
   850MHz
   8
   8
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   O 900MHz (GSM<->GSM) 🔁 Upgrade FW O 1800MHz ○ 1900MHz C V.110 9600 C 850/1900MHz (GSM<->ISDN) Set Defaults • 900/1800MHz .... O V.32 9600 (GSM<->Analog Modem) 900/1900MHz
- 3. Click the **GSM Setting** tab and select the correct radio band for your application.

The following instructions illustrate how to configure the radio band using the Wizard.

- 1. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Make sure the RS-232 port of the OnCell G2150I GSM/GPRS modem is connected and DIP Switch 1 is set to **ON**.
- 2. Start the OnCell Configurator utility and select the **Create a new Configuration File from Wizard** option.

🛃 OnCell Configurator	×
Welcome to the OnCell Modem Wizard	
Use this wizard to set up your OnCell G2100 cellular modem.	
Create a Configuration File	
Create a new Configuration File from Configurator	
Create a new Configuration File from Wizard	
Load a Configuration File	
C Load an existing Configuration File to Configurator	
Constant existing consignation hiero consignation	
Next Cano	el

#### OnCell G2150I User's Manual

3. Click the **PIN and Band Management** page and select the correct radio band for your application.

🛃 OnCell Configurator		×
PIN and Band Management		
SIM Card PIN Setup If your SIM card requires a PIN, enter it here:	-Select Band C 850MHz C 900MHz C 1800MHz C 1900MHz C 850/1900MHz Ø 900/1800MHz C 900/1900MHz	
	Back Next	Cancel

## **Initial Strings**

The following instructions illustrate how to configure the initial strings using **Configurator**.

- 1. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Make sure the RS-232 port of the OnCell G2150I GSM/GPRS modem is connected and DIP Switch 1 is set to **ON**.
- 2. Start the OnCell Configurator utility and select the **Create a new Configuration File from Configurator** option.

🛃 OnCell Configurator	×
Welcome to the OnCell Wizard	
Use this wizard to set up your OnCell G2100 cellular modem.	
Create a Configuration File	
Create a new Configuration File from Configurator	
Create a new Configuration File from Wizard	
Load a Configuration File	
C Load an existing Configuration File to Configurator	
[Next] Canc	el

3. Click the Init. Strings tab and enter the initial string in the text input box.

🛃 OnCell Config		_
<u>File</u> <u>T</u> erminal Emul		
Basic Setting GSM	4 Setting SMS Tunnel Init. Strings	
Separate AT Com	mand	Apply
Command 1:	ATEO	ļ
Command 2:	ATS0=1	🚅 Get Settings
Command 3:	AT+CICB=0	
Command 4:	AT+WMBS=4	Sig. Strength
Command 5:		
Initial Strings		Upgrade FW
AT&V&F		Set Defaults

**NOTE** Maximum 39 characters for each initial string.

## Saving the Configuration Profile

The following instructions illustrate how to configure the serial communication parameters using Configurator.

- 1. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Make sure the RS-232 port of the OnCell G2150I GSM/GPRS modem is connected and DIP Switch 1 is set to **ON**.
- 2. Start the OnCell Configurator utility and select **Create a new Configuration File from Configurator**.

🛃 OnCell Configurator	×
Welcome to the OnCell Wizard	
Use this wizard to set up your OnCell G2100 cellular modem.	
Create a Configuration File	
Create a new Configuration File from Configurator	
Create a new conliguiation rile from conliguiator	
C Create a new Configuration File from Wizard	
Create a new conliguration rile from wizard	
Load a Configuration File	
C Load an existing Configuration File to Configurator	
( Nate ) Ca	ncel
LNext	ncer

3. Select Save File from the File menu.

🚅 OnCell Configurato	r	
<u>File</u> <u>Terminal Emulator</u>	<u>H</u> elp	
<u>G</u> o to Mode Wizard	ng SMS Tunnel Init. Strings	
<u>S</u> ave File <u>L</u> oad File From	Device Name	Apply
Exit Baud Rate 115200	MOXA TECHNOLOGY	Get Settings

4. Select a folder and enter the file name for the profile. Click on Save.



## **Applying Modem Settings**

The following instructions illustrate how to apply the current settings to an OnCell G2150I Modem using **Configurator**.

1. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Make sure the RS-232 port of the OnCell G2150I GSM/GPRS modem is connected and DIP Switch 1 is set to **ON**.



The RS-232 connector uses the standard pinouts. A direct male DB9 to female DB9 cable, such as MOXA's CBL-F9M9-150 (100 cm) or CBL-F9M9-20 (20 cm), can be used to connect to a PC's serial port. If you use a USB-to-serial product to configure the OnCell G2150I, we strongly recommend using MOXA's UPort 1110 series of products. Other USB-to-serial products may cause unexpected errors when configuring the OnCell G2150I.

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2. Start the OnCell Configurator utility and select the **Create a new Configuration File from Configurator** option.

🛃 OnCell Configurator	×
Welcome to the OnCell Wizard	
Use this wizard to set up your OnCell G2100 cellular modem.	
Create - Configuration File	
Create a new Configuration File from Configurator	
C Create a new Configuration File from Wizard	
Load a Configuration File	
C. London within Conferentian Die to Conferentia	
C Load an existing Configuration File to Configurator	
	_
Cano	cel

3. Click the **Apply** button.

4	🛃 OnCell Configurator							
Ē	<u>File</u> <u>T</u> erminal Emulator <u>H</u> elp							
1	Basic Setting GSM Setting SMS Tunnel Init. Strings							
	-Serial Interfa	ice		Device Name	<b></b>	Apply		
	Modify Baud Rate	115200 💌			<u>_</u>	Get Settings		
	Flow Control	None			((01-0))	Sig. Strength		
	Data Bits	8 💌		SIM Card PIN Setup				
	Stop Bits	1		If your SIM card requires a PIN, enter it here:	<u>_</u>	Upgrade FW		
	Parity	None				Set Defaults		
	🗖 Disable	Echo						
#### **OnCell G2150I User's Manual**

4. Select the correct COM number and the communication parameters for connecting to the modem. Click **OK** to proceed.

4	Connect Set	up	×	J
	-Connection Se	etup		
	COM Port	СОМ1	•	
	Flow Control	None	•	
	Baud Rate	115200	•	
	Data Bits	8	•	
	Stop Bits	1	•	
	Parity	None	•	
	🗖 Auto Dete	ect Serial Settings		
	OK	Cancel		



If you are not sure which communication parameters you should use, please select the **Auto Detect Serial Settings** option and follow the onscreen instructions. The procedure may take few minutes to complete. When using the **Auto Detect Serial Settings** function, if the **GSM** or the **GPRS** LED is **ON** or blinking, you must remove the SIM card, or use the escape command (+++) on the terminal to disconnect the current connection.

The default parameters are: 115200, 8n1, RTS/CTS for flow control.

5. Wait few seconds for the settings to be appled. Click **OK** to finish.

Status
Apply new settings to modem
Loading
OnCell Configurator
Modem settings have been applied.
ок

#### **Retrieving the Modem Settings**

The following instructions illustrate how to use Configurator to get the current settings of an OnCell G2150I Modem.

1. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Make sure the RS-232 port of the OnCell G2150I GSM/GPRS modem is connected and DIP Switch 1 is set to **ON**.



### **ATTENTION**

The RS-232 connector uses the standard pinouts. A direct male DB9 to female DB9 cable, such as MOXA's CBL-F9M9-150 (100 cm) or CBL-F9M9-20 (20 cm), can be used to connect to a PC's serial port. If you use a USB-to-serial product to configure the OnCell G2150I, we strongly recommend using MOXA's UPort 1110 series of products. Other USB-to-serial products may cause unexpected errors when configuring the OnCell G2150I.

2. Start the OnCell Configurator utility and select the Create a new Configuration File from Configurator option.

🛃 OnCell Configurator	×
Welcome to the OnCell Wizard	
Use this wizard to set up your OnCell G2100 cellular modem.	
Create > Configuration File	
Create a new Configuration File from Configurator	
So create a new conliguration r lie from conliguration	
C Create a new Configuration File from Wizard	
Load a Configuration File	
Luau a conliguiation File	
C Load an existing Configuration File to Configurator	
Next	Cancel 📗

3. Click the **Get Settings** button on the right side of the window.

🛃 OnCell Configurator		
<u>File T</u> erminal Emulator <u>H</u> elp		
Basic Setting GSM Setting SMS Tu	nnel Init. Strings	
Serial Interface	Device Name	Apply
Baud Rate 115200		Get Settings
Flow Control None		Sig. Strength
Data Bits 🛛 👻 👻	SIM Card PIN Setup	
Stop Bits	If your SIM card requires a PIN, enter it here:	Upgrade FW
Parity None 💌		Set Defaults
🔲 Disable Echo		

#### **OnCell G2150I User's Manual**

4. Select the correct COM number and the communication parameters to connect the modem. Click **OK** to proceed.

4	Connect Set	ap	×
	-Connection Se	etup	
	COM Port	СОМ1	-
	Flow Control	None	-
	Baud Rate	115200	<b>-</b>
	Data Bits	8	-
	Stop Bits	1	<b>-</b>
	Parity	None	-
	🗖 Auto Dete	ect Serial Settings	
	OK	Cancel	



If you are not sure which communication parameters you should use, please select the **Auto Detect Serial Settings** option and follow the onscreen instructions. The procedure may take few minutes to complete. When using the **Auto Detect Serial Settings** function, if the **GSM** or the **GPRS** LED is **ON** or blinking, you must remove the SIM card, or use the escape command (+++) on the terminal to disconnect the current connection.

The default parameters are: 115200, 8n1, RTS/CTS for flow control.

5. Wait a few seconds while the settings are retrieved and then click **OK**.

Status	
Get settings from modem	
Start	
	1
OnCell Configurator	
Query modem status sucess.	
ок 🛛	

6. The settings will be exported to the **Configurator** window, and the current firmware version will also be displayed.

<u>4</u> 0	<b>DnCell</b> Cor	nfigurator			_ 🗆 🗙
<u>F</u> ile Ba		Emulator <u>H</u> elp GSM Setting SMS Tu	unn	el [Init. Strings]	
F F C S	Serial Interfa ✓ Modify Baud Rate Flow Control Data Bits Stop Bits Parity Disable	115200   None   None  None  None  None		Device Name MOXA TECHNOLOGY SIM Card PIN Setup If your SIM card requires a PIN, enter it here:	Apply  Cet Settings  Cet Settings  Sig. Strength  Cet Defaults  Set Defaults
					FW Ver 1.2
					Build 07053002

# Loading a Profile

The following instructions illustrate how to load a profile using **Configurator**.

- 1. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Make sure the RS-232 port of the OnCell G2150I GSM/GPRS modem is connected and DIP Switch 1 is set to **ON**.
- 2. Start the OnCell Configurator utility and select the **Create a new Configuration File from Configurator** option.

🛃 OnCell Configurator	×
Welcome to the OnCell Wizard	
Use this wizard to set up your OnCell G2100 cellular modem.	
Create - Configuration File	
Create a new Configuration File from Configurator	
C Create a new Configuration File from Wizard	
Load a Configuration File	
C Load an existing Configuration File to Configurator	
Carl Carl	ncel 📗

3. Click on the **File** menu and select **Load File from...**.

🚅 OnCell Configurato	📲 OnCell Configurator			
<u>File</u> <u>T</u> erminal Emulator	Help			
<u>G</u> o to Mode Wizard	ng SMS Tunnel Init. Strings			
<u>S</u> ave File Load File From	Device Name	Apply		
Exit Baud Rate 115200		Get Settings		

4. Select a folder and profile and then click **Open**.

Open		? ×
Look in	: 🞯 Desktop 💽 🔶 📾 📸 🎟 🗸	
My Recent Documents Desktop My Documents My Computer	My Documents My Computer My Network Places APP PIC Product Software Share_Pic V1.0 CD Stare_01.txt	
My Network Places		pen ancel

🛃 OnCell Co	onfigurator		
<u>File T</u> erminal	l Emulator <u>H</u> elp		
Basic Setting	GSM Setting SMS Tun	nnel Init. Strings	
Serial Interf		Device Name	Apply
Baud Rate Flow Contro	115200 <b>•</b>		( <sup>(()</sup> 1 <sup>()</sup> )) Sig. Strength
Data Bits Stop Bits	8	SIM Card PIN Setup If your SIM card requires a PIN, enter it here: 0000	Upgrade FW
Parity	None 💌		Set Defaults

7. The modem configuration stored in the profile will be exported to the **Configurator**.

The following instructions illustrate how to load a profile using the Wizard.

- 1. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Make sure the RS-232 port of the OnCell G2150I GSM/GPRS modem is connected and DIP Switch 1 is set to **ON**.
- 2. Start the OnCell Configurator utility and select the Load an existing Configuration file to Configurator option.

🛃 OnCell Configurator	×
Welcome to the OnCell Modem Wizard	
Use this wizard to set up your OnCell G2100 cellular modem.	
Create a Configuration File	
Create a new Configuration File from Configurator	
Create a new Configuration File from Wizard	
Load a Configuration File	
C Load an existing Configuration File to Configurator	
Next Core	. 1
Next Cance	<u> </u>

- Open ? × Look in: 🔞 Desktop • + 🖹 📥 💷 My Documents 4 😼 My Computer My Recent Documents 🧐 My Network Places 🚞 APP 🚞 PIC P Droduct Software Desktop Share\_Pic DV1.0 CD 🗐 G2150I\_Save\_01.txt My Documents Open File name: G2150I\_Save\_01.txt • Files of type: Txt files (\*.txt) •
- 3. Select a folder and profile and then click **Open**.

4. The modem configuration stored in the profile will be exported to the Configurator.

🚅 OnCell Co	nfigurator			
<u>F</u> ile <u>T</u> erminal	Emulator <u>H</u> elp			
Basic Setting	GSM Setting SMS Tu	innel	Init. Strings	
-Serial Interfa			Device Name	🚉 Apply
🔽 Modify			MOXA TECHNOLOGY	
Baud Rate	115200 💌			Get Settings
Flow Control	None 💌			Sig. Strength
Data Bits	8		SIM Card PIN Setup	📜 Upgrade FW
Stop Bits	1 💌		If your SIM card requires a PIN, enter it here: 0000	
Parity	None			Set Defaults
🗖 Disable	Echo			

# **Signal Strength Monitor**

The following instructions illustrate how to configure the serial communication parameters using **Configurator**.

1. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Make sure the RS-232 port of the OnCell G2150I GSM/GPRS modem is connected and DIP Switch 1 is set to **ON**.



#### **ATTENTION**

The RS-232 connector uses the standard pinouts. A direct male DB9 to female DB9 cable, such as MOXA's CBL-F9M9-150 (100 cm) or CBL-F9M9-20 (20 cm), can be used to connect to a PC's serial port. If you use a USB-to-serial product to configure the OnCell G2150I, we strongly recommend using MOXA's UPort 1110 series of products. Other USB-to-serial products may cause unexpected errors when configuring the OnCell G2150I.

2. Start the OnCell Configurator utility and select the Create a new Configuration File from Configurator option.

🛃 OnCell Configurator	×
Welcome to the OnCell Wizard	
Use this wizard to set up your OnCell G2100 cellular modem.	
Create : Conliguration File	
Create a new Configuration File from Configurator	
C Create a new Configuration File from Wizard	
Cleate a new conliguiation File Irolin Wizard	
Load a Configuration File	
C Load an existing Configuration File to Configurator	
(Next]	Cancel
i135800	

3. Click the Sig. Strength button on the right side of the window.

🛃 OnCell Configurator		_ 🗆 🗙
<u>File T</u> erminal Emulator <u>H</u> elp		
Basic Setting GSM Setting SMS Tu	nnel Init. Strings	
Serial Interface	Device Name	Apply
Baud Rate 115200		Get Settings
Flow Control None		(((1))) Sig. Strength
Data Bits 🛛 🖉	SIM Card PIN Setup	
Stop Bits 1	If your SIM card requires a PIN, enter it here:	Upgrade FW
Parity None		Set Defaults
🗖 Disable Echo		

#### **OnCell G2150I User's Manual**

4. Select the correct COM number and communication parameters to connect to the modem and then click **OK** to proceed.

4	Connect Set	ap		×
	Connection Se	etup		
	COM Port	СОМ1	•	
	Flow Control	None	•	
	Baud Rate	115200	•	
	Data Bits	8	•	
	Stop Bits	1	•	
	Parity	None	•	
	🗖 Auto Dete	ect Serial Settings		
	OK	Cancel		



If you are not sure which communication parameters you should use, please select the **Auto Detect Serial Settings** option and follow the onscreen instructions. The procedure may take few minutes to complete. When using the **Auto Detect Serial Settings** function, if the **GSM** or the **GPRS** LED is **ON** or blinking, you must remove the SIM card, or use the escape command (+++) on the terminal to disconnect the current connection.

The default parameters are: 115200, 8n1, RTS/CTS for flow control.

5. Wait a few seconds while the signal strength and the carrier information are queried. Click **OK** to finish.

🛃 Monitor Signal Strength 📃 🔲 🔉	<
Update Frequency © 5 Sec © 10 Sec © 30 Sec	
Network	
GSM Operator: TW Mobile	
Registration: Registered	
-Rx Level	
RSSI: 21	
ΟΚ	

Number of Illuminated Signal LEDs	Type of Signal that Can be transmitted	
None	No signal, or SIM card is not installed properly	
1 LED	Weak or insufficient (SMS only)	
2 LEDs	Average (good for GSM CSD and GPRS connections)	
3 LEDs	Exceptional (good for GSM CSD and GPRS connections)	

## **Upgrading the Firmware**

The following instructions illustrate how to use Configurator to upgrade the firmware of an OnCell G2150I.

1. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Make sure the RS-232 port of the OnCell G2150I GSM/GPRS modem is connected and DIP Switch 1 is set to **ON**.



The RS-232 connector uses the standard pinouts. A direct male DB9 to female DB9 cable, such as MOXA's CBL-F9M9-150 (100 cm) or CBL-F9M9-20 (20 cm), can be used to connect to a PC's serial port. If you use a USB-to-serial product to configure the OnCell G2150I, we strongly recommend using MOXA's UPort 1110 series of products. Other USB-to-serial products may cause unexpected errors when configuring the OnCell G2150I.

2. Start the OnCell Configurator utility and select **Create a new Configuration File from Configurator**.

🛃 OnCell Configurator	×
Welcome to the OnCell Wizard Use this wizard to set up your OnCell G2100 cellular modem.	
Create - Configuration File	
<ul> <li>Create a new Configuration File from Configurator</li> </ul>	>
C Create a new Configuration File from Wizard	
Load a Configuration File	
C Load an existing Configuration File to Configurator	
	Cancel

3. Click the **Upgrade FW** button on the right side of the window.

🛃 OnCell Configurator		_ 🗆 🗙
<u>F</u> ile <u>T</u> erminal Emulator <u>H</u> elp		
Basic Setting GSM Setting SMS Tun	nnel Init. Strings	
Serial Interface	Device Name	Apply
Baud Rate 115200		Get Settings
Flow Control None		( <sup>(0</sup> ))) Sig. Strength
Data Bits 🛛 🚬	SIM Card PIN Setup	💼 Upgrade FW
Stop Bits 1	If your SIM card requires a PIN, enter it here:	opgrade i w
Parity None 💌		Set Defaults
Disable Echo		

4. Upgrading the firmware will clear all current configuration settings in the OnCell G2150. To exit and save the current settings, click **NO**. To proceed, click **Yes**.

DnCell Configurator
This will reset the modem to default settings. Your current settings will be lost. To save your modem's current settings, press "Cancel", then use the "Get Settings" function and the "File->Save" command.
Do you wish to proceed?
Yes

5. Select a firmware file from the disk and then click **Open** to proceed.

Open				? ×
Look in:	🞯 Desktop	•	수 🛍 💣 🎟 •	
My Recent Documents Desktop My Documents My Computer	<ul> <li>My Documents</li> <li>My Computer</li> <li>My Network Places</li> <li>APP</li> <li>PIC</li> <li>Product Software</li> <li>Share_Pic</li> <li>V1.0 CD</li> <li>FW_G21501_1.2.img</li> </ul>			
My_Network	File name: FW_G2150	I_1.2.img	•	Open
Places	Files of type: Img files (*.i	mg)	•	Cancel

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6. Select the correct COM number and the communication parameters to connect to the modem. Click **OK** to proceed.

4	Connect Set	որ	X
	-Connection Se	etup	
	COM Port	СОМ1 💌	[
	Flow Control	None	
	Baud Rate	115200 💌	
	Data Bits	8 💌	[
	Stop Bits	1 💌	[
	Parity	None	[
	🗖 Auto Dete	ect Serial Settings	
	<u> </u>	Cancel	_



If you are not sure which communication parameters you should use, please select the **Auto Detect Serial Settings** option and follow the onscreen instructions. The procedure may take few minutes to complete. When using the **Auto Detect Serial Settings** function, if the **GSM** or the **GPRS** LED is **ON** or blinking, you must remove the SIM card, or use the escape command (+++) on the terminal to disconnect the current connection.

The default parameters are: 115200, 8n1, RTS/CTS for flow control.

7. Wait a few seconds while the firmware is downloaded to the OnCell G2150I.

atus
Upgrade Firmware To Modem
Loading
Loading

8. Click OK to finish.

OnCell Configurator	×
Upgrade Firmware Comp	olete
ОК	

#### **Setting Modem Defaults**

The following instructions illustrate how to use Configurator to load the factory default settings into the OnCell G2150I.

1. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Make sure the RS-232 port of the OnCell G2150I GSM/GPRS modem is connected and DIP Switch 1 is set to **ON**.

# 

The RS-232 connector uses the standard pinouts. A direct male DB9 to female DB9 cable, such as MOXA's CBL-F9M9-150 (100 cm) or CBL-F9M9-20 (20 cm), can be used to connect to a PC's serial port. If you use a USB-to-serial product to configure the OnCell G2150I, we strongly recommend using MOXA's UPort 1110 series of products. Other USB-to-serial products may cause unexpected errors when configuring the OnCell G2150I.

2. Start the OnCell Configurator utility and select the **Create a new Configuration File from Configurator** option.

🛃 OnCell Configurator	X
Welcome to the OnCell Wizard	
Use this wizard to set up your OnCell G2100 cellular modem.	
Create a Configuration nile	
Create a new Configuration File from Configurator	
C Create a new Configuration File from Wizard	
Load a Configuration File	
C Load an existing Configuration File to Configurator	
Next	Cancel

3. Click the **Set Defaults** button on the right side of the window.

🛃 OnCell Configurator		_ 🗆 🗙
<u>File T</u> erminal Emulator <u>H</u> elp		
Basic Setting GSM Setting SMS To	unnel Init. Strings	
Serial Interface	Device Name	
Baud Rate 115200		Get Settings
Flow Control None		((1)) Sig. Strength
Data Bits 🛛 🖉	SIM Card PIN Setup	
Stop Bits 1	If your SIM card requires a PIN, enter it here:	Upgrade FW
Parity None 💌		Set Defaults
Disable Echo		

4. Select the correct COM number and the communication parameters to connect to the modem and then click **OK** to proceed.

4	🛃 Connect Setup 🔀		
	-Connection Se	etup	
	COM Port	СОМ1 💌	
	Flow Control	None	
	Baud Rate	115200 💌	
	Data Bits	8	
	Stop Bits	1	
	Parity	None	
	🗖 Auto Dete	ect Serial Settings	
	OK	Cancel	



#### ATTENTION

If you are not sure which communication parameters you should use, please select the **Auto Detect Serial Settings** option and follow the onscreen instructions. The procedure may take few minutes to complete. When using the **Auto Detect Serial Settings** function, if the **GSM** or the **GPRS** LED is **ON** or blinking, you must remove the SIM card, or use the escape command (+++) on the terminal to disconnect the current connection.

The default parameters are: 115200, 8n1, RTS/CTS for flow control.

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5. Wait a few seconds for the default settings to load, and then click **OK** to finish.

Status	
Reset Modern To Defaults	
Beginning	
OnCell Configurator	×
Default settings have been applied, 115200 (	8-N-1
ОК	

# **4** AT Command Set

The AT Command Set can be used to operate, configure and query the OnCell G2150I GSM/GPRS modem. This chapter includes information about the AT Command Set of the OnCell G2150I GSM/GPRS Modem.

The following topics are covered in this chapter:

- □ AT Command Set Introduction
- **Gamma Starting MOXA Terminal Emulator**
- □ AT Command Examples
- □ Selecting the Radio Band
- **D** PIN Code Management
- □ Serial Line Settings
- □ 2-wire RS-485 Communication
- □ Additional Information

#### AT Command Set Introduction

The OnCell G2150I GSM/GPRS modem supports the guidelines known as the "V.25ter AT Command Set." The AT prefix (also known as the Attention Code) signals the modem that one or more commands are to follow. The AT Command Set is the industry standard line-oriented command language used to communicate with the modem. The OnCell G2150I GSM/GPRS modem is always either in the command mode, or the on-line mode. The OnGell G2150I GSM/GPRS modem starts up in command mode when it is first switched on. Commands are only accepted by the modem when it is in command mode. Commands that are input when the modem is on-line, are treated as data, not as commands. Commands may be entered from terminal software such as Windows HyperTerminal, or MOXA PComm Lite Terminal Emulator.

Settings made with AT commands are automatically reused by the modem until another command is received to change the settings, or the modem is turned off.

All but two of the commands must begin with the characters AT. The two exceptions are the escape sequence (+++), and the repeat command (A/). The command line prefix (letters AT) and the command sequences that follow, can be typed in upper case or lower case, but the cases must not be mixed. More than one command can be typed on one line, and can be separated by spaces to make the commands easier to read. The spaces are ignored by the modem's command interpreter. The command line buffer accepts up to 39 characters including, "A" and "T". Spaces, carriage returns, and line feed characters are not placed in the buffer, and do not count against the 39 character limitation. If more than 39 characters are entered, or a syntax error is found anywhere in the command line, the modem returns an ERROR result code, and the command input is ignored.

The modem will acknowledge most commands almost immediately. As soon as you type in a command ending with the carriage return character, your modem will respond with OK.

#### NOTE +++

The 3 plus signs are used for the *Escape Character Sequence*. After you have connected to another modem, you may need to return to command mode to modify the modem's configuration or to hang up. To do this, leave your keyboard idle (do not press any keys) for at least one second, and then press "+" three times. This is one of the two commands that do not use the AT prefix (note that you do not need to press enter). After a moment, the modem will respond with OK, indicating you have been returned to Command mode.

### **Starting MOXA Terminal Emulator**

The following instructions explain how to install the MOXA PComm Lite Package. After installing PComm Lite, you can use the built-in MOXA Terminal Emulator to handle your modem operations.

**NOTE** MOXA OnCell Configurator / Terminal Emulator is only suitable for Windows 2000/XP/2003/Vista. Windows 98/ME/NT users should download the MOXA PComm Lite V2.6 package for these operating systems from MOXA's Website (www.moxa.com.)

MOXA OnCell Configurator / Terminal Emulator is one of the most popular terminal emulation utilities (Windows embedded HyperTerminal utility can also be used as a terminal software to issue AT commands).

- 1. First use Terminal Emulator to install MOXA OnCell Configurator. Refer to Ch.3 for details.
- 2. Click on Start  $\rightarrow$  All Programs  $\rightarrow$  OnCell Configurator  $\rightarrow$  PCommLite  $\rightarrow$  Mxterm.



3. The PComm Terminal Emulator user interface will appear. Click the **Open** button, which is the first blue icon on the tool bar.



4. Select the target COM port and the communication parameters. Click **OK** to open the port.

Property	×
Communication Paramete	Terminal File Transfer Capturing
COM Options	
Ports :	COM1 -
Baud Rate :	115200
Data Bits :	8 💌
Parity :	None
Stop Bits :	1
Flow Control	DTR  ON OFF
	RTS O ON O OFF
	OK Cancel

5. Terminal Emulator will connect to the target COM port.



#### **AT Command Examples**

The following examples are designed to give users a better understanding of how to use the AT Commands.



Make sure that the RS-232 port of the OnCell G2150I GSM/GPRS modem is connected, and DIP Switch 1 is set to **ON**.

- 1. Modem acknowledgement
  - a. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Start PComm Terminal Emulator with the current communication parameters (default: 115200 bps, 8 for Data bits, None for Parity, 1 for Stop bits, and None for flow control). Type **AT**, and then press **Enter**.
  - b. A modem response of **OK** indicates that the modem is ready.



- 2. Verify the signal strength
  - a. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Open PComm Terminal Emulator with the current communication parameters (default: 115200 bps, 8 for Data bits, None for Parity, 1 for Stop bits, and None for flow control), type **AT+CSQ**, and press **Enter**.
  - b. The modem will respond with the receive signal strength (RSSI) and channel bit error rate (BER).

Profile Edit Port Man	mulator - COM1,115200,None,8,1,Dumb	Terminal
_	ne,8,1,Dumb Terminal	
at at		
DTR OK		
RTS at+csq		
+CSQ: 19,0		
oĸ		
ok		
	Strength Verification	1
	Strength Verification Weak or insufficient	-
Signal		
Signal 0 to 12	Weak or insufficient	

BER Rage from 0 to 7 (7 is the higher error rate).

**NOTE** RSSI should remain higher than 12 to create/accept GSM CSD data calls or establish a GPRS connection. Users can only transmit/receive by SMS (short message) if the RSSI is less than or equal to 11.

A better way of verifying the RSSI signal (instead of using the AT+CSQ command) is to check the "SIGNAL" LEDs on the front panel directly. See Chapter 2 for more information.

#### **Radio Band Selection**

Although GSM-900 and GSM-1800 are used in most parts of the world, operators in United States, Canada, and many other countries in the Americas use GMS-850 or GSM-1900. A quad-band industrial cellular modem such as the OnCell G2150I makes it relatively easy to prepare the product for shipment to different parts of the world.

The GSM/GPRS band of OnCell G2150I is configured to 900/1800 MHz by default. For users NOT in this service area, follow the instructions below to set up the correct radio bands.

- **NOTE** The following procedures can also be carried out using OnCell Configurator
  - 1. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Start PComm Terminal Emulator using the current communication parameters (default: 115200 bps, 8 for Data bits, None for Parity, 1 for Stop bits, and None for flow control.)
  - 2. Type **AT+WMBS=x**, where x represents one of the band selections shown in the following table, and then press **Enter**.

Radio Band Selection		
0	Mono-band, 850 MHz	
1	Mono-band, 900 MHz	
2	Mono-band, 1800 MHz	
3	Mono-band, 1900 MHz	
4	Dual-band, 850/1900 MHz	
*5	Dual-band, 900/1800MHz (default)	
6	Dual-band, 900/1900MHz	

For example, users in North America would type the following:

PComm Terminal Emulator - COM1,115200,None,8,1,Dumb Terminal		
Profile Edit Port Manager Window Help		
COM1,115200,None,8,1,Dumb Terminal		
at		
DTR OK		
RTS at+wmbs=4		
OK		

#### **PIN Code Management**

A suitable SIM (Subscriber Identity Module) card must be installed in the OnCell G2150I in order for it to be able to process data. The SIM card contains the data needed to identify the modem to the network service provider to activate the service, and is also used to store the GSM/GPRS modem PIN (Personal Identification Number.) codes and PUK (Personal Unblocking Key) codes, which are the same codes used with mobile phones. The PIN code helps prevent unauthorized persons from using mobile devices, such as the OnGell G2150I GSM/GPRS modem. Users must enter the PIN each time the modem is powered up. The PUK code is used to unblock a SIM card when an incorrect PIN code has been entered three times.

1. Query the Current PIN Status

Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Start PComm Terminal Emulator with the current communication parameters (default: 115200 bps, 8 for Data bits, None for Parity, 1 for Stop bit, and None for flow control.)

2. Type AT+CPIN? and press Enter.

PComm Terminal Emulator - COM1,115200,None,8,1,Dumb Terminal
Profile Edit Port Manager Window Help
🛃 🖬 🕅 🗃 📚 🖼 😹 Brk 🔊 28
COM1,115200,None,8,1,Dumb Terminal
at
DTR OK RTS at+cpin?
+CPIN: SIM PIN

If the OnCell G2150I responds with "+CPIN: SIM PIN" then the user must input the SIM's PIN code.

AT+CPIN? responses		
+CPIN: READY	Modem is not pending for any password	
+CPIN: SIM PIN	PIN1 is required	
+CPIN: SIM PUK	PUK1 is required	

If the OnCell G2150I responds with "+CPIN: READY" then the SIM security is disabled, or the PIN for the SIM was entered correctly.

3. Enter PIN

If the +**CPIN: SIM PIN** is responded by the modem, type **AT**+**CPIN=**<**pin>** where <**pin>** is the correct **PIN**. Press Enter.

For example (PIN = 0000),





Be careful when entering the PIN codes.

After 3 unsuccessful attempts at entering the PIN, you will need to use the PUK to proceed. PUK validation forces the user to enter a new PIN code as a second parameter, and this will be the new PIN code if PUK validation succeeds. CHV1 will be enabled if PUK1 is correct. Therefore, the application uses the following command:

#### AT+CPIN=<*PUK*>,<*NewPIN*>

Note that users must apply for PUK codes from the mobile service provider.

#### AT+CPIN=<PUK>,<NewPIN>

Note that users must apply the PUK codes from the mobile service provider.

4. Disable the Facility Lock

Disabling the facility lock will allow the G2150I to operate without entering the PIN code each time the modem is powered up.

- a. Type **AT+CPIN=**<*pin>* where <*pin>* is the correct PIN. Press Enter.
- b. Type **AT+CLCK="SC"**,0,<*pin>* where SC should be capitals and <*pin>* is the correct PIN.

The following example uses PIN = 0000:

PComm Terminal Emulator - COM1,115200,None,8,1,Dumb Terminal
Profile Edit Port Manager Window Help
🛃 🖬 🕅 🚰 📚 🖼 😹 Brk 🔜 28
COM1,115200,None,8,1,Dumb Terminal
at
DTR OK
RTS at+cpin?
+CPIN: SIM PIN
at+cpin=0000
ok
at+clck="SC",0,0000
ok

5. Enable the Facility Lock, type AT+CLCK="SC",1,<pin>

The following example uses PIN = 0000:





Once the correct PIN is entered with the **AT**+ **CPIN** command, or using OnCell Configurator, the system (firmware V1.2 or above) will activate the **Automatic PIN Entry** function. This function will store the current PIN in its memory and enter it into the OnCell G2150I each time the system boots up. If the SIM card does not match the current PIN, the **Automatic PIN Entry** function will be deactivated.

To activate the **Automatic PIN Entry** function again, use the **AT**+ **CPIN** command or OnCell Configurator to enter the correct PIN.

To disable Automatic PIN Entry once and for all, use the AT\*USEPIN=0 command.

# **Serial Line Settings**

# 

Changes to the serial communication parameters take affect immediately. For this reason, you will need to update the terminal settings to match the new serial communication parameters.

Configuration can also be performed with the AT\*SERIAL command or OnCell Configurator.

The default serial communication parameters are: **115200 bps**, **8**, **None with RTS/CTS flow control**, **1**. Follow the steps below to change these settings.

- 1. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Open PComm Terminal Emulator with the current communication parameters (default: 115200 bps, 8 for Data bits, None for Parity, 1 for Stop bits, and RTS/CTS for flow control.)
- 2. Baudrate settings
  - a. Type **AT+IPR=***x* and press **Enter**, where x corresponds to one of the following baudrates: **300**, **600**, **1200**, **2400**, **4800**, **9600**, **19200**, **38400**, **57600**, **115200**, **0** (**autobauding**).
  - b. Switch the settings of the terminal to fit the new settings.
  - c. Type AT&W and press Enter to save the settings.

For example, type AT+IPR=9600 to change the baudrate to 9600 bps:

PComm Terminal Emulator - COM1,115200,None,8,1,Dumb Terminal
Profile Edit Port Manager Window Help
COM1,115200,None,8,1,Dumb Terminal
at
DTR OK
RTS at+ipr=9600
ok

Switch the settings of the terminal to fit the new settings.

Property	×
Communication Parameter   Terminal   File Transfer	Capturing
COM Options Ports : <u>°COM1 ▼</u> Baud Rate : 9600 ▼ Data Bits : <u>9600</u> Parity : 38400 57600 Stop Bits : <u>115200</u> ▼	
Flow Control TRTS/CTS XON/XOFF COLtput State DTR ON OFF RTS ON OFF	
OK	Cancel

Type **AT&W** and press **Enter** to save the settings.

PComm Terminal Emulator - COM1,9600,None,8,1,Dumb Terminal		
Profile Edit Port Manager Window Help		
🗐 🖬 🕅 🛃 🔄 🗟 🗟 🛤 🔊 28		
COM1,9600,None,8,1,Dumb Terminal		
DTR OK RTS at 4w OK		

- 3. Data Bits and Parity
  - a. Type **AT**+**ICF**=*x*,*y* and press **Enter**, where **x** and **y** correspond to the following parameters.

y = Data bits/ stop bits	1	8 data bits, 2 stop bits
	2	8 data bits, 1 parity, 1 stop bit
	3	8 data bits, 1 stop (default)
	4	7 data bits, 2 stop bits
	5	7 data bits, 1 parity, 1 stop bit
	6	7 data bits, 1 stop bit
	0	Odd parity
	1	Even parity
z = Parity	2	Mark parity
	3	Space parity
	4	None parity (default)

b. Type **AT&W** and press **Enter** to save the settings.



#### ATTENTION

- 1. The serial communication parameters will be updated immediately; change the terminal settings to match the new settings to keep configuring the modem.
- 2. Autobauding and +++ escape command only work with 8n1 or e71 settings. Using other settings will disable these functions.

3. You can only set **stop bits = 2** when **parity = none**.

For example, type **AT**+**ICF**=**5**,**1** to change the parameters from **8n1** to **e71**:

PComm Terminal Emulator - COM1,9600,None,8,1,Dumb Terminal		
Profile Edit Port Manager Window Help		
🛃 🖬 🕅 🚰 📚 🖼 😹 Brk 🔜 28		
COM1,9600,None,8,1,Dumb Terminal		
at		
DTR OK		
RTS at+icf=5,1		
OK		

Switch the settings of the terminal to fit the new settings.

ter Terminal File Transfer Capturing
*COM1
9600 💌
7 🔹
Even
1
Output State
DTR O ON O OFF
RTS ON O OFF
OK Cancel

Type **AT&W** and press **Enter** to save the settings.



4. Flow Control

The default RTS/CTS flow control setting is **none.** Follow steps a. and b. below to enable RTS/CTS flow control:

- a. Type **AT+ICF=2,2** and press **Enter**. To disable it again, type **AT+ICF=0,0** and press **Enter**.
- b. Type **AT&W** and press **Enter** to save the settings.



- 1. The serial communication parameters will be updated immediately; change the terminal settings to match the new settings to keep configuring the modem.
- 2. XON/XOFF flow control is not supported.

For example, type **AT+IFC=2,2** and press **Enter** to enable **RTS/CTS** flow control, and then type **AT&W** and press **Enter** to save the settings.



#### 2-wire RS-485 Communication

2-wire RS-485 uses half-duplex communication. For this reason, the modem's local echo should be disabled using the steps below.

**NOTE** The local echo function can also be disabled using **OnCell Configurator**.

- 1. On the bottom of the OnCell G2150I GSM/GPRS modem, set DIP1 to ON.
- 2. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Start PComm Terminal Emulator with the current communication parameters (default: 115200bps, 8 for Data bits, None for Parity, 1 for Stop bits).
- 3. Type **ATE0** and press **Enter** to disable the local echo.
- 4. Type **AT&W** and press **Enter** to save the settings. Note that because the local echo is disabled, users will no see any response from the modem at the terminal screen.



5. On the bottom of OnCell G2150I GSM/GPRS modem, set **DIP1** to **OFF**, **DIP2** to **ON**, and **DIP3** to **ON**.

#### Additional Information

1. V.25ter recommendation

Commands that are not listed in the manual **G2150I\_AT\_Commands.pdf**, which is located in the **AT\_Commands** folder on the Document and Software CD, are not supported. For commands that are not supported, the OnCell G2150I will respond with "ERROR". All modulation control, error control, and data compression commands are not recognized. An "ERROR" string will be returned if you issue one of these commands.

2. GSM 07.05 recommendation

07.05 commands not described in this manual will not be implemented. An "ERROR" string will be returned if you issue one of these commands.

3. GSM 07.07 recommendation

07.07 commands not described in this manual will not implemented. An "ERROR" string will be returned if you issue one of these commands.

4. MOXA proprietary AT commands are supported by firmware versions V1.2 or above.

Please refer to the /AT\_Commands/G2150I\_AT\_Commands.pdf on the Document and Software CD for further information.

# **GSM CSD Connection**

A Circuit-Switched Data Connection makes the wireless modem work in a manner similar to a regular analog modem. You must have CSD service in order to make a CSD call.

This chapter covers the following topics:

- **Overview**
- □ Establishing a CSD Connection
- □ Answering a CSD Connection

#### Overview

CSD (Circuit Switched Data) is the original form of data transmission developed for GSM systems. By using a single radio time slot, CSD is able to deliver 9.6 to 14.4 kbit/s data transmission to both the GSM Network and PSTN Switching Subsystem through direct calls. Most of the time, it is initiated by standard AT commands. Using the modem to access remote devices by CSD is often more convenient than installing cables and data lines. Data collection and monitoring will be more flexible since CSD can be used for applications that are hard to wire or hard to access.



### **Establishing a CSD Connection**

The following instructions describe the steps you should follow to establish a CSD connection using the OnCell G2150I GSM/GPRS modem with MOXA PComm Lite 2000's Terminal Emulator.

1. Start PComm Terminal Emulator with the current communication parameters (default: 115200 bps, 8 for Data bits, None for Parity, 1 for Stop bits, and None for flow control).





- Check the "SIGNAL" LED indicators on the front panel of the OnCell G2150I GSM/GPRS modem. If the LEDs are all off, then the SIM card is not installed properly, or there is no signal present.
- 2. If only one LED is illuminated, then the signal is not strong enough to create a CSD connection. Adjust the position of the antenna, change the location of the modem, or use an optional high-gain antennas instead.
- 3. Ensure that your SIM card has the CSD Service activated. For most regions, you must apply to your mobile service provider to receive this service.
- 4. Ensure that the RS-232 port on the OnCell G2150I GSM/GPRS modem is connected and DIP Switch 1 is set to **ON**.

2. Type **ATD** *<phone number>* and press Enter.

Type the phone number you are calling between the brackets displayed on the screen. Do not type additional brackets. For example, type only ATD 0289191230, in which 0289191230 is typed between the brackets.

- 3. Check the front panel of the "GSM" LED indicator. If the LED displays a continuous amber color, then the CSD connection has been established successfully, and you can switch to data mode to proceed with data communication.
- 4. To disconnect the connection, type +++. The modem will respond with **OK** to indicate that you have already switched back to the command mode.
- 5. Type ATH and then press Enter to disconnect.



**NOTE** +++ is the escape sequence, and **ATH** is the hang-up command.

For international calls, the local international prefix does not need to be set, but does need to be replaced by the + character. I.e., you would type **ATD+886289191230**.

### **Answering a CSD Connection**

The following instructions describe the steps you should follow to establish a CSD connection using the OnCell G2150I GSM/GPRS modem with MOXA PComm Lite 2000's Terminal Emulator.

1. To answer a call manually, when the Terminal Emulator displays the RING response, type **ATA** and press **Enter**.

PComm Terminal Emulator - COM1,115200,None,8,1,Dumb Terminal
Profile Edit Port Manager Window Help
🗐 🖬 🛃 🚰 📚 Brk 📠 28
COM1,115200,None,8,1,Dumb Terminal
RING
DTR
RTS RING
RING
ata

- 2. Check the "GSM" LED indicator on the front panel. If the LED displays a continuous amber color, then the CSD connection has been established, and the modem will be in the data mode. At this point you can proceed with data communication.
- 3. To answer a call automatically, type **ATS0=x** and press **Enter**, and then type **AT&W** and press **Enter** in the Terminal Emulator window. In this case, replace **x** with the number of rings that the modem receive before answering the call.



**NOTE** ATA is the Answer command. ATS0=<x> is the auto-answer command. The AT&W command helps to save the current settings to the modem.

It is much more easier to activate Auto-answer using OnCell Configurator. Click the GSM Setting tab, checkmark the **Enable Auto-answer on \_\_\_\_ Rings** checkbox, and then input the number of rings to wait in the input box.

🛃 OnCell Configurator			
<u>File</u> <u>T</u> erminal Emulator <u>H</u> elp			
Basic Setting GSM Setting SMS Tunn	nel Init. Strings		
GSM Connection Enable Auto-answer on Rings  DTR Drop Action © Ignore DTR Command Mode © Hang Up		Apply	

- 4. To disconnect the modem, type +++. The modem will respond with **OK**, which means that you have already switched back to command mode.
- 5. Type ATH and press Enter to disconnect.



#### ATTENTION

If you are answering a call from a PSTN dial-up modem, type **AT+CICB=0** to force the incoming call to be a data call. Type AT+CBST=7, 0, 1 to select bearer type to V.32 Modem (9600 bps). In addition, type **AT&W** to save the settings. For further information, check the Document and Software CD for /**AT\_Commands/G2150I\_AT\_Commands.pdf**.

OnCell Configurator makes it easier to perform this task. Select the V32. 9600 option and then click **Apply** to activate the function.

🛃 OnCell Configurator			
<u>File</u> <u>T</u> erminal Emulator <u>H</u> elp			
Basic Setting GSM Setting SMS	Tunnel Init. Strings		
GSM Connection	DTR Drop Action © Ignore DTR © Command Mode © Hang Up	Apply	
GSM Protocol GSM Autobauding (GSM<->GSM) V.110 9600	Select Band C 850MHz C 900MHz C 1800MHz C 1900MHz	Sig. Strength	
(GSM<->ISDN) • <u>V.32 9600</u> (GSM<->Analog Modem)	© 850/1900MHz © 900/1800MHz © 900/1900MHz	Set Defaults	

6

# **Using Short Message Services**

GSM technology offers the benefit of using SMS (short message service) as an easy way to communicate over the mobile network. In this chapter, we explain how to use SMS with the OnCell G2150I GSM/GPRS Modem.

The following topics are covered in this chapter:

- □ Sending a Short Message
- **General Reading a Short Message**
- **Deleting a Short Message**
- □ SMS Tunnel Mode

#### Sending a Short Message

Follow these instructions to send a short message to a specific phone number.

- 1. Type AT+CMGF=1 and then press Enter.
- 2. Type **AT+CMGS=**"*<phone number>*" and then press **Enter.** The terminal will automatically move to the next line, which starts with >. Type your message to the right of the >.
- 3. Press Ctrl + Z to deliver the message.





### **Reading a Short Message**

Follow these instructions to send a short message to a specific phone number.

- 1. Type AT+CMGF=1 and then press Enter.
- 2. When a short message is received, the modem will show the storage number of the message after "+CMIT: "SM", x" (where the x is the storage number).
- 3. Type **AT+CMGR**=*x* to read the message.
- 4. In the example shown below, the x=5 means that the message is stored in the 5<sup>th</sup> storage location.

BComm Terminal Emulator - COM1,115200,None,8,1,Dumb Terminal				
	Profile Edit Port Manager Window Help			
	COM1,115200,None,8,1,Dumb Terminal			
		at		
	DTR OK			
	RTS	+CMTI: "SM",5 at+emgr=5		
+CMGR: "REC UNREAD","+886972613404",,"07/03/19,00:36:24 SMS Test #1				
		OK		

#### **Deleting a Short Message**

In this section, we illustrate how to delete a short message.

- 1. Type **AT+CMGD**=*x*,*n* and then press **Enter**.
  - This is where *x* represents one of the following options:

"REC UNREAD"	Shows received unread messages.
"REC READ"	Shows received read messages.
"STO UNSENT"	Shows stored unsent messages.
"STO SENT"	Shows stored sent messages.
"ALL"	Shows messages.

This is where n represents one of the following options:

- 0 Delete message at location <include the index number>
- 1 Delete all READ messages.
- 2 Delete all READ and SENT messages.
- **3** Delete all READ, SENT, and UNSENT messages.
- 4 Delete ALL messages. "REC UNREAD" Shows received unread messages.
- 2. The following example shows how to delete all short message in the storage.

**NOTE** Refer to the Documentation and Software CD / AT\_Commands / G2150I\_AT\_Commands.pdf for further detail commands information using SMS.

#### **SMS Tunnel Mode**

A major benefit of GSM technology is that it supports short messages (SMS) for easy communication over the mobile network. MOXA's proprietary SMS Tunnel Mode allows you to expand your applications and reduce cost. For example, SMS Tunnel Mode can be used to update the message on a highway display panel, place refill orders for vending machines, handle maintenance for remote rental equipment, or even help create an SMS alarm by directly transforming text, binary, or unicode data from a legacy device to short messages, but without using AT Commands. SMS Tunnel Mode is particularly suitable for devices that communicate infrequently, or lack access to the local network. SMS Tunnel Mode converts both ASCII and binary data to short messages transparently (both back and forth). In addition, a caller ID (phone number) identification can be used to block the message sent from the uncertified users, broadcast messages, and unwanted SMS advertisements.

MOXA's proprietary SMS Tunnel Mode has the following features:

- 1. Transparently converts serial data to short message or vise versa without using AT Commands.
- 2. Text, binary, and Unicode formats are supported.
- 3. Verification of Incoming Caller ID is implemented to block uncertified users.
4. The configuration profile can be easily stored, and then copied to other modems.



The following instructions show how to use Configurator to configure SMS Tunnel Mode.

- 1. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Make sure the RS-232 port of the OnCell G2150I GSM/GPRS modem is connected and DIP Switch 1 is set to **ON**.
- 2. Start the OnCell Configurator utility and select the **Create a new Configuration File from Configurator** option.

🛃 OnCell Configurator	×
Welcome to the OnCell Wizard	
Use this wizard to set up your OnCell G2100 cellular modem.	
Create - Configuration File	
Create a new Configuration File from Configurator	)
Create a new configuration File from witzard	
Load a Configuration File	
<b>-</b>	
C Load an existing Configuration File to Configurator	
Ca	ncel

 Click the SMS Tunnel tab and checkmark the SMS-IN checkbox to allow forwarding of incoming short messages to the OnCell G2150I's serial port as data. Checkmark the SMS-OUT checkbox to allow data received from the attached serial device to be transmitted as short messages. The Caller ID (phone number) and Target Phone Number should be specified.



SMS Data Format		
Text ASCII	7 bits text format (160 bytes per packet)	
Binary	8 bits binary (140 bytes per packet)	
Unicode 16 bits Unicode (UCS2) format (70 bytes per packet)		



- 1. The Target Phone Number must be specified if SMS-OUT is activated.
- 2. The **Target Phone Number** and **Caller ID** must be written in international format, starting with "+" followed by the country code.
- 3. If you leave **Caller ID** blank, the OnCell G2150I will allow all incoming short messages as serial data to be forwarded to its serial port. This includes system broadcasts and advertisements.
- 4. Once the SMS Tunnel (SMS-OUT, SMS-IN or both) is activated and the SIM has registered to a carrier, the **GSM** LED will start blinking. The mode will be **Data Mode**, which does not allow users to input AT Commands. Use the **escape command** (+++) from the terminal to switch to **Command Mode**, and perform other operations using AT commands or OnCell Configurator.
- 5. **SMS Tunnel Mode** will disable the **Auto-answer** function, as well as connectivity by GSM, CSD, and GPRS.
- 6. The timeout between characters is 0.5 second. Messages that require a longer time period will be split into 2 or more messages.

The following instructions show how to configure SMS Tunnel mode using the Wizard.

- 1. Connect the RS-232 port of the OnCell G2150I GSM/GPRS Modem to a host PC. Make sure the RS-232 port of the OnCell G2150I GSM/GPRS modem is connected and DIP Switch 1 is set to **ON**.
- 2. Start the OnCell Configurator utility and select the **Create a new Configuration File from Wizard** option.

🛃 OnCell Configurator	×
Welcome to the OnCell Modem Wizard	
Use this wizard to set up your OnCell G2100 cellular modem.	
Create a Configuration File	
O Create a new Configuration File from Configurator	
C) Cledie a Don Connight dion rine non-computatoj	
Create a new Configuration File from Wizard	
Londo Conferencia Ele	
Load a Configuration File	
C Load an existing Configuration File to Configurator	
Next Car	ncel

3. Select SMS Tunnel Mode and click Next to proceed.

🛃 OnCell Configurator	x
Welcome to the OnCell Modem Wizard Use this wizard to set up your OnCell G2100 cellular modem. Please select mode that you would like set up	
Select an Operation Mode Transparent Mode SMS Tunnel Mode * Modem is fully controlled by AT Commands in Transparent Mode.	
Back Next Canc	el



4. On the SMS Tunnel Mode Settings page, checkmark the SMS-IN checkbox to allow forwarding incoming short message to the OnCell G2150I's serial port as data. Checkmark the SMS-OUT checkbox to allow data received from the attached serial devices to be transmitted as short messages. Caller ID (phone number) and Target Phone Number should be specified. Click Next to proceed.

OnCell Configurator     SMS Tunnel Mode Settings     SMS Data Mode creates a data tunnel for low-speed and non-time-critical applications to     send data over SMS service provided by a carrier.			
✓       SMS-IN         SMS to Serial       Caller ID Verification         No.1       +88689191230         No.2       +         SMS Data Format       •         ●       Text ASCII         ●       Binary (8 bits)         ●       Unicode (UCS2)		SMS-OUT         Serial to SMS         Target Phone Number         No.1       +88689191230         No.2       +         SMS Data Format         © Text ASCII         © Binary (8 bits)         © Unicode (UCS2)	
Back Next Cancel			
SMS Data Format			
Text ASCII	7 bits text format (	160 bytes per packet)	
Binary	8 bits binary (140	bytes per packet)	
Unicode	16 bits Unicode (U packet)	ICS2) format (70 bytes per	



- 1. The Target Phone Number must be specified if SMS-OUT is activated.
- 2. The **Target Phone Number** and **Caller ID** must be written in international format, starting with "+" followed by the country code.
- 3. If you leave **Caller ID** blank, the OnCell G2150I will allow all incoming short messages as serial data to be forwarded to its serial port. This includes system broadcasts and advertisements.
- 4. Once the SMS Tunnel (SMS-OUT, SMS-IN or both) is activated and the SIM has registered to a carrier, the **GSM** LED will start blinking. The mode will be **Data Mode**, which does not allow inputting AT Commands. Use the **escape command** (+++) from the terminal to switch to **Command Mode**, and perform other operations using AT commands or OnCell Configurator.
- 5. **SMS Tunnel Mode** will disable the **Auto-answer** function, as well as GSM CSD and GPRS the connectivity.
- 6. The timeout between characters is 0.5 second. Messages longer than this will be split into two or more messages.

5. The profile will be exported to **Configurator**. Click **Apply** to upload the settings.

# **7** GPRS Connection

This following topics are covered in this chapter:

## **Overview**

## **Windows GPRS Access**

- Installing the Modem Driver
- Modem Diagnostics
- Setting up the APN
- > Adding Windows DUN

## Overview

GPRS is a packet-switched technology, which means that multiple users share the same transmission channel. In addition, GPRS transmits only when there is outgoing data. This means that the available bandwidth can be dedicated solely to data communication when needed. In general, a GPRS network can be viewed as a special IP network that offers IP connectivity to IP terminals. Devices such as PCs, embedded computers, and PLCs that are PPP-enabled can be easily connected to the IP network and the Internet.



The OnCell G2150I GSM/GPRS modem provides multi-slot Class 10, which means that there are **4 Rx** timeslots plus **1 Tx** timeslot, or **3 Rx** timeslots plus **1 Tx** timeslot. The CS-1 to CS-4 Coding Schemes must be supported by the provider. GPRS offers no guaranteed data rates or bandwidth. The value assigned by the provider (coding scheme and timeslots) can change dynamically during a connection.

In general, for the 1 Tx + 4 Rx combination, the Tx throughput is around 8-12 Kbps when the Rx throughput is around 32-48 Kbps.

For the 2 Tx + 3 Rx combination, the Tx throughput is around 8-12 Kbps when the Rx throughput is around 32-48 Kbps.

## Windows GPRS Access

The OnCell G2150I GSM/GPRS Modem can use Windows DUN (Dial-up Networking) to provide the Internet access through the GPRS mobile network. Instructions are described in the following chapters.

**NOTE** The specific steps may vary depending on your version of Windows and your Windows settings.

## Installing the Modem Driver

1. In the Control Panel, open "Phone and Modem Options" and go to the "Modem" tab. Click **Add** to add a new modem.



**NOTE** The first time you access the **Phone and Modem Options**, Windows will ask you to input the area code. Enter the area code to proceed.

2. When the Install Mode window opens, select **Don't detect my modem**, **I will select it from a list** and then click **Next**.

Add Hardware Wizard		
Install New Modem Do you want Windows	to detect your modem?	
	<ul> <li>Windows will now try to detect your modem. Before continuing, you should:</li> <li>1. If the modem is attached to your computer, make sure it is turned on.</li> <li>2. Quit any programs that may be using the modem.</li> <li>Click Next when you are ready to continue.</li> <li>I Don't detect my modem; I will select it from a list.</li> </ul>	>
	<back next=""></back>	Cancel

3. Next, click Have Disk.



4. When the Install From Disk window opens, click **Browse**.



5. Select the **OnCell\_G2150I.inf** driver. The file is located in the **Win\_Driver** directory on the Document and Software CD. Click **Open** to proceed.

Locate File			? ×
Look in: 🔀	Win_Driver	- 🗘 🗊 🛙	🤊 🛄 -
	21501		
		Q	
File name:	ONCell_G2150		Open
Files of type:	Setup Information (*.inf)	<u> </u>	Lancel

6. When the Install From Disk page opens, click **OK**.

Install Fro	om Disk	×	
J	Insert the manufacturer's installation disk, and then make sure that the correct drive is selected below.	OK Cancel	
	Copy manufacturer's files from: D:\Win_Driver	Browse	

7. Click Next.



8. When the next window opens, select the OnCell G2150I GSM/GPRS COM port that you are using, and then click **Next**.

Add Hardware Wizard	
Install Ne <del>w</del> Modem	
Select the manufacturer and model of yo have an installation disk, click Have Dis	our modem. If your modem is not listed, or if you k.
Models	
Moxa OnCell G2150I GSM GPRS Modem	
This driver is not digitally signed! <u>Tell me why driver signing is important</u>	Have Disk
	< Back Next > Cancel

9. A message will appear stating that the driver has not passed Windows Logo testing. Click **Continue Anyway** to proceed.

Hardware	Installation
♪	The software you are installing for this hardware: Moxa OnCell G2150I GSM_GPRS Modem
	has not passed Windows Logo testing to verify its compatibility with Windows XP. ( <u>Tell me why this testing is important.</u> )
	Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
	Continue Anyway STOP Installation

10. Click **Finish** to complete the installation procedure.

Add Hardware Wizard	
Install New Modem Modem installation is fir	iished!
	Your modem has been set up successfully. If you want to change these settings, double-click the Phone and Modem Options icon in Control Panel, click the Modems tab, select this modem, and then click Properties.
	< Back Finish Cancel

11. At this point, the OnCell G2150I driver should be listed on the "Modems" tab under "Phone and Modem Options."

Phone and Modem Options		? ×
Dialing Rules Modems Advanced		
The following modems are installed:		
Modem	Attached To	
🎯 Moxa OnCell G21501 GSM GPRS Modem	COM1	

## **Modem Diagnostics**

Follow these steps to verify that the modem is installed properly and has been activated.

1. From the Control Panel, open Phone and Modem Options, click the Modem tab, and then click Properties.



- 1. Make sure the RS-232 port of the OnCell G2150I GSM/GPRS modem is connected and DIP Switch 1 is set to ON.
- 2. Make sure the SMS Tunnel Mode is disabled. If the GSM LED keeps blinking (SMS Tunnel is enabled and activated), you must use the terminal software to run the escape command (+++) to switch to the Command Mode, or remove the SIM Card directly.

Phone and Modem Options	<u>? ×</u>
Dialing Rules Modems Advanced	
The following modems are installed:	
Modem	Attached To
🛞 Moxa OnCell G21501 GSM GPRS Modem	COM1
Add Rei	nov Properties
OK	Cancel Apply

Moxa OnCell G2150I G5M GPR5 Modem Properties	? ×
General Modem Diagnostics Advanced Driver	
Modem Information	
Field Value Hardware ID oncellg2150i80335dcc	
Command Response	
Query Modem	
Logging Append to Log	
ОК Са	ancel

2. Click the **Diagnostics** tab, and then click **Query Modem**.

3. If the query is successful, both commands to the modem and responses from the modem will be displayed.

Moxa OnCell G2150I G5M GPR5 Modem Properties	? ×
General Modem Diagnostics Advanced Driver	
Modem Information	
Field Value Hardware ID oncellg2150i80335dcc	
Command Response	
ATQ0V1E0 COMMAND NOT SUPPORTED	
AT+FCLASS=? +FCLASS: (0,1,2) AT#CLS=? COMMAND NOT SUPPORTED	
Query Modem	
Logging	
Append to Log	
OK 0	ancel

## Setting up the APN

Before using the GPRS on the Windows DUN, the APN (Access Point Name) must be added as a modem initialization command. Detailed instructions are shown below.



## ATTENTION

- 1. Check the "SIGNAL" LED indicators on the front panel of the OnCell G2150I GSM/GPRS modem. If none of the LEDs are illuminated, then the SIM card is not installed properly, or the modem is not picking up a signal.
- 2. If only one "SIGNAL" LED is illuminated, then the signal is not strong enough to create a GPRS connection. Adjust the position of the antenna, change the location of the installation, or use an optional high-gain antenna instead.
- 3. Make sure your SIM card has the GPRS Service activated. In most regions, you will need to apply to your mobile service provider to activate the service.
- 4. Make sure that the RS-232 port of the OnCell G2150I GSM/GPRS modem is connected and DIP Switch 1 is set to **ON**.
- 1. From the Control Panel, open **Phone and Modem Options,** click the **Modem** tab, and then click **Properties**.

Phone and Modem Options	? ×
Dialing Rules Modems Advanced	
The following modems are installed:	
Modem Attached To	
🛞 Moxa OnCell G21501 GSM GPRS Modem 🛛 COM1	
Add Renove Propert	ies
OK Cancel Ap	pply

2. Click the **Advanced** tab next.



3. Enter the following commands in the Extra initialization commands: text box.

### AT+CGDCONT=1,"IP","<APN>"

Replace <APN> with the correct service for your account. For example: AT+CGDCONT=1,"IP","ISP.CINGULAR"

Moxa OnCell G2150I G5M GPR5 Modem Properties	? ×
General Modem Diagnostics Advanced Driver	
Extra Settings	- I
Extra initialization commands:	
AT+CGDCONT=1,"IP","ISP.CINGULAR"	



- 1. The APN should be typed between the displayed brackets. Remember that the APN is case sensitive.
- 2. Note that "IP" should be written in all capital letters.
- 3. For a list of APNs, please refer to the file **APN\_List.pdf**, which is located in the **APN\_List** folder on the Document and Software CD.
- 4. Click **OK** to close the **Properties** window.

## Adding Windows DUN

Follow these steps to add Windows Dial-up Networking.

- 1. In the Control Panel, open Network Connections, and then click **Create a new connection**.
- 2. When the **New Connection Wizard** window opens, select the **Connect to Internet** option, and then click **Next**.

New Connection Wizard	
Network Connection Type What do you want to do?	Ð
Connect to the Internet Connect to the Internet so you can browse the Web and read end	nail.
Connect to the network at my workplace Connect to a business network (using dial-up or VPN) so you car a field office, or another location.	work from home,
Set up a home or small office network Connect to an existing home or small office network or set up a n	ew one.
Set up an advanced connection Connect directly to another computer using your serial, parallel, o set up this computer so that other computers can connect to it.	r infrared port, or
< Back Nex	kt > Cancel

3. Select the Set up my connection manually option, and then click Next.

New Connection Wizard				
Getting Ready The wizard is preparing to set up your Internet connection.				
How do you want to connect to the Internet?				
Choose from a list of Internet service providers (ISPs)				
Set up my connection manually For a dial-up connection, you will need your account name, password, and a phone number for your ISP. For a broadband account, you won't need a phone number.				
C Use the CD I got from an ISP				
< Back Next > Cancel				

4. Select the **Connect using a dial-up modem** option, and then click **Next**.

ew Connection Wizard
Internet Connection How do you want to connect to the Internet?
Connect using a dial-up modem This type of connection uses a modem and a regular or ISDN phone line.
<ul> <li>Connect using a broadband connection that requires a user name and password         This is a high-speed connection using either a DSL or cable modem. Your ISP may refer to this type of connection as PPPoE.     </li> <li>Connect using a broadband connection that is always on         This is a high-speed connection using either a cable modem, DSL or LAN connection. It is always active, and doesn't require you to sign in.     </li> </ul>
< Back Next > Cancel

5. Type the name of your service provider in the text input box, and then click Next.

Connection Wizard	
Connection Name What is the name of the service that provid	des your Internet connection?
Type the name of your ISP in the following b	OX.
ISP Name	
Cingular Wireless	
The name you type here will be the name of	the connection you are creating.
·	
	< Back Next > Cancel

ATTENTION

6. Type **\*99**\*\*\***1**# in the Phone number text input box, and then click **Next**.

 <b>me Numb</b> o What is you	er to Dial ur ISP's phone i	number?			Ś
Type the pł	none number be	elow.			
Phone	number:				
*99***1	#				
you nee	ed the extra nur			ooth. If you are n n your telephone	
you nee	ed the extra nur	mbers, dial the p	hone number or		

The phone number "\*99\*\*\*1#" is a special phone number for requesting GPRS IP service from the carrier. DO NOT modify this phone number. It will always be the same number, regardless of in which country you are using the OnCell G2150I.

7. Type the **User name** and **Password** in the appropriate text boxes, and then click **Next.** For example:

New Connection Wizard					
Internet Account Inform You will need an acco	nation unt name and password to sign in to your Internet account.	I)			
	name and password, then write down this information and sto e forgotten an existing account name or password, contact ye				
User name:	ispda@cingulargprs.com				
Password:	•••••	]			
Confirm password:		1			
Use this account name and password when anyone connects to the Internet from this computer					
🔲 Make this the defa	Make this the default Internet connection				
	< Back Next > 0	Cancel			



For a list of User names and Passwords, refer to the file APN\_List.pdf in the APN\_List folder on the Document and Software CD, or consult your service provider for further details.

8. Click Finish.

New Connection Wizard	
	Completing the New Connection Wizard
	You have successfully completed the steps needed to create the following connection:
	Cingular Wireless <ul> <li>Share with all users of this computer</li> </ul>
	The connection will be saved in the Network Connections folder.
	Add a shortcut to this connection to my desktop
	To create the connection and close this wizard, click Finish.
	< Back Finish Cancel

9. When the next window opens, click **Properties**.

Connect Cingular Wireless		
User name: ispda@cingulargprs.com Password: [To change the saved password, click here]		
<ul> <li>Save this user name and password for the following users:</li> <li>Me only</li> <li>Anyone who uses this computer</li> </ul>		
Dial: *99***1#		
Dial Cancel Properties Help		

10. Check to make sure that the **Use dialing rules** box is NOT checked, and then click the **Networking** tab.

🖕 Cingular Wireless Properti	es		?	Ľ×
General Options Security N	letworking ( /	Advanced	1	
Connect using:				
🎯 Modem - Moxa OnCell G2"	1501 GSM/GF	PRS Mode	m (COM1)	
			Configure	]
Phone number				7
Area code: Phone nur	nber:			
*99***1#		A	ternates	
Country/region code:				
			~	
Use dialing rules		Dial	ing Rules	
$\overline{\boldsymbol{arsigma}}$ Show icon in notification area when connected				
		ок	Cancel	

11. If you know the IP address of the DNS server, click on **Internet Protocol (TCP/IP)** to highlight it, and then click **Properties**.

🔓 Cingular Wireless Properties 🙎 🙎		
General Options Security Networking Advanced		
Type of dial-up server Lam calling:		
PPP: Windows 95/98/NT4/2000, Internet		
S ettings		
This connection uses the following items:		
wide area network protocol that provides communication across diverse interconnected networks.		
OK Cancel		

12. Select the **Use the following DNS server addresses** option, type the IP addresses in the appropriate text boxes, and then click **OK**.

Internet Protocol (TCP/IP) Propertie	5	? ×		
General				
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.				
Obtain an IP address automatically				
└── Use the following IP address: ──				
IP address:				
Obtain DNS server address automatically     Ose the following DNS server addresses:				
Preferred DNS server:	66 . 209 . 10 . 201			
Alternate DNS server:	66 . 209 . 10 . 202			
	Advan	ced		
	ОК	Cancel		



For detailed DNS information, please refer to the following document /**APN\_List/APN\_List.pdf** on the Document and Software, or consult your service provider for further details.

13. Click OK.



14. Click **Dial** to establish the connection.

Connect Cing	lar Wireless	? ×
C		
User name: Password:	ispda@cingulargprs.com [To change the saved pa	ssword, click here]
Me on	user name and password for t y e who uses this computer	he following users:
Dial:	×99***1 <b>#</b>	
Dial	Cancel	ties Help

# A

## Using the OnCell G2150I GSM/GPRS Modem with MOXA UC-7110/7112

MOXA's UC-7110 and UC-7112 are palm-sized embedded Linux computers that can be used for applications such as transportation control, light control, factory/building automation, and power utilities. However, for some applications it is either inconvenient or impossible to connect to the embedded computers with a traditional land line. In this case, MOXA's industrial cellular modem, the OnCell G2150I, is a great solution for setting up GSM/GPRS connectivity to the UC-7110/7112.



## **Download Tech Note and Scripts**

1. Download this step-by-step installation guide:

<u>ftp://esource.moxa.com/marketer/MCircle/2007-06/MOXA\_Tech\_Note---Using\_the\_G2150I\_GP</u> <u>RS\_Modem\_with\_UC-7110\_7112.pdf</u>,

2. Download this reference script

ftp://esource.moxa.com/marketer/MCircle/2007-06/Linux G2150I ppp scripts.rar.

B

## Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits 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.

-- Connect 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.

### CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

## FCC RF Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference and

(2) This device must accept any interference received, including interference that may cause undesired operation.

# C Service Information

This appendix shows you how to contact Moxa for information about this and other products, and how to report problems.

In this appendix, we cover the following topics.

- **MOXA Internet Services**
- **D** Problem Report Form
- **D** Product Return Procedure

## **MOXA Internet Services**

Customer satisfaction is our number one concern, and to ensure that customers receive the full benefit of our products, Moxa Internet Services has been set up to provide technical support, driver updates, product information, and user's manual updates.

The following services are provided:

E-mail for technical support.....support@moxa.com.tw

Moxa Group website for product information, driver downloads, documentation, and more:

.....<u>http://www.moxa.com</u>

## **Problem Report Form**

## MOXA OnCell G21501

Customer name:		
Company:		
Tel:	Fax:	
Email:	Date:	

2. Serial Number: \_\_\_\_\_

**Problem Description:** Please describe the symptoms of the problem as clearly as possible, including any error messages you see. A clearly written description of the problem will allow us to reproduce the symptoms, and expedite the repair of your product.



## **Product Return Procedure**

For product repair, exchange, or refund, the customer must:

- Provide evidence of original purchase.
- Obtain a Product Return Agreement (PRA) from the sales representative or dealer.
- Fill out the Problem Report Form (PRF). Include as much detail as possible for a shorter product repair time.
- Carefully pack the product in an anti-static package, and send it, pre-paid, to the dealer. The PRA should be visible on the outside of the package, and include a description of the problem, along with the return address and telephone number of a technical contact.