MOXA®

OnCell G2111/G2151I Series

Quick Installation Guide

First Edition, August 2011

Overview

The OnCell G2111, G2111-T, and G2151I are industrial quad-band GSM/GPRS modems that transmit data and short messages (SMS) over GSM/GPRS mobile networks. They require little training to operate and can improve the efficiency of your maintenance and communication routine. All models offer an RS-232 interface with 15 KV ESD protection, making them ideal for attaching devices such as stand-alone controllers, PC COM ports, or multi-dropped electric meters. The casing is IP30-rated and can be mounted on a DIN-rail or on a wall. Each modem has a 12 to 48 VDC power input, allowing different types of field power sources to be attached. Several LED indicators provide status information. The OnCell G2111-T also offers wide temperature operation, while the OnCell G2151I offers an additional RS-422/485 interface and 2.5 KV RMS isolation protection for 1 minute on all serial signals.

Package Checklist

- OnCell G2111/G2151I Series GSM/GPRS modem
- Mini magnetic SMA antenna (0 dBi)
- Terminal block to power jack cable
- Document and Software CD
- Quick Installation Guide
- Product Warranty Statement

NOTE   Notify your sales representative if any of the above items is missing or damaged.

Applications

- Remote data acquisition
- Remote data monitoring
- Remote serial device control
- Critical industrial control
- SMS notification

Features and Specifications

- GSM/GPRS:
  - Quad-band GSM/GPRS
  - GPRS Class 10 (CS-1 to CS-4)
  - 1-watt GSM 1800/1900
  - 2-watt EGSM 900/GSM 850
- CSD data rate: up to 14,400 bps
- SIM control: 3V/1.8V interface
- Antenna: 0 dBi/10 cm, mini magnetic SMA
- Serial (all models):
  - Baudrate: 300 bps to 230.4 Kbps
  - Data bits: 8
  - Stop bit(s): 1
  - Parity: none
  - Flow control: RTS/CTS, None
  - RS-232 connector: DB9 female
  - RS-232 signals: TxD, RxD, RTS, CTS, DTR, DSR, DCD, and RI
  - Serial line protection: 15 KV ESD (OnCell G2111 only)
- Serial (OnCell G2151I only):
  - RS-422/485 connector: terminal block
  - RS-422/RS-485 (4w) signals: TxD+, TxD-, RxD+, RxD-, GND
  - RS-485 (2w) signals: Data+, Data-, GND
  - RS-422/485 termination: 120Ω (DIP switch)
  - RS-422/485 pull high/low: 150K/150 KΩ, 1K/1KΩ (DIP switch)
  - Isolation: 2.5 KV RMS for 1 minute (all RS-232/422/485 signals)
- Environmental:
  - Operating temperature: -20 to 55°C
  - (-30 to 70°C for OnCell G2111-T)
  - Storage temperature: -40 to 75°C
  - Humidity: 5 to 95% RH
- Power:
  - Input power voltage: 12 to 48 VDC
  - Power consumption:
    > Idle: 50 mA @ 12 V

    > Data link: 625 mA (peak) @ 12V

- Dimensions: 27 × 23 × 79 mm
- Casing: ABS+PC, IP30 rating
- Weight: 150 ± 5g
- Regulatory approvals: CE, FCC Class A, UL
- Limited warranty: 5 years

General Configuration

Installing SIM Card, Antenna, Power

Before you can operate the modem, the SIM card must be properly installed, with GPRS active. The following figure illustrates how to install the SIM card.
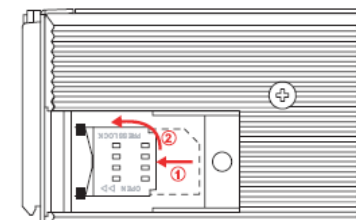

① Push to the left   ② Open

After installing the SIM card, connect the antenna to the SMA connector on the front panel. Afterwards, connect the OnCell's 3-pin terminal block to your field power supply or a DC power adaptor.

NOTE   The antenna must be connected before supplying the power. If the antenna is not connected first, the OnCell may be damaged.

Check the STATUS LED indicator on the front panel to verify connection status.

PIN Code Management

For security reasons, you should always enable the PIN (Personal Identification Number) when using your GSM/GPRS modem. The PIN can be entered by using the AT command AT+CPIN=<pin>, in which <pin> refers to the correct PIN.
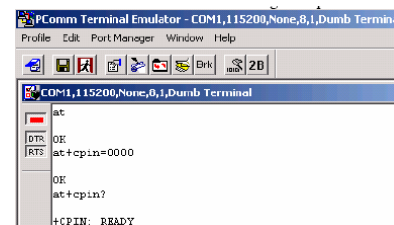
Serial Parameter Configuration

The default serial communication parameters are **115200 bps, 8, none, 1**. The baud rate can be modified by using the AT command AT+IPR=x, in which x corresponds to one of the following baudrates: 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 115200, 230400, and 0 (autobauding).

P/N: 1802021110011
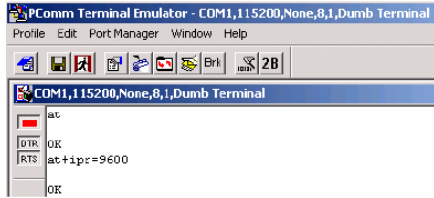
LED Indicators

Type	Color	Description
PWR	Green	DC power connection
STATUS	Amber	Slow Blinking: GSM registered to the base station Steady ON: GSM/CSD connected Fast Blinking: GPRS connected
Tx	Green	Serial Tx
Rx	Amber	Serial Rx

GPRS Connection on Windows

Installing Windows Modem Driver

The following instructions are provided as a basic guide. Specific steps may vary depending on your version of Windows and your Windows settings. After successfully entering the PIN code:

1. In the Control Panel, open **Phone and Modem Options** and select the **Modems** tab.
2. Click **Add** to add a new modem.
3. On the Install Modem page, select "Don't detect my modem, I will select it from a list" and click Next.
4. On the next page, select **Standard Modem Type**s and choose the **Standard 19200 bps Modem**. Click **Next** to proceed.
5. Select the COM port to which the modem is connected and click **Next**.
6. Click **Finish**.

Setting Initialization Command

Before using GPRS, the APN (Access Point Name) must be added as a modem initialization command.

1. In the **Control Panel**, open **Phone and Modem Options** and select the **Modems** tab.
2. Select **Standard 19200 kbps Modem** from the table and click **Properties**.
3. From the **Properties** window, select the **Advanced** tab. In the **Extra initialization commands** text box, enter the following:
   AT+CGDCONT=1,"IP","<APN>"
   For <APN>, use the correct service APN for your account. Please note that this command is case-sensitive, as follows:
   AT+CGDCONT=1,"IP","ISP.CINGULAR"
4. Click **OK** to close the modem **Properties** window.

> **NOTE** For a list of APNs, please consult your service provider or refer to /**APN_List/APN_List.pdf** on the Document and Software CD.

Adding Windows DUN

1. In the Control Panel, open **Network Connections**.
2. Click **Create a new connection**.
3. The New Connection Wizard should appear. Click **Next** to proceed.
4. On the **Network Connection Type** page, select Connect to the Internet and click **Next**.
5. On the **Getting Ready** page, select **Set up my connection manually** and click **Next**.
6. On the **Internet Connection** page, select **Connect using a dial-up modem** and click **Next**.
7. On the **Connection Name** page, enter a name for the new connection in the **ISP Name** field and click **Next**.
8. On the **Dial screen** page, enter ***99***1#** in the **Phone Number** field and click **Next**.

> **NOTE** *99***1# is a special phone number for requesting GPRS IP service from the carrier. Do not alter this setting in any way.

Creating CSD Connection

CSD (Circuit Switched Data) is the data transmission format for GSM systems. With CSD, data is transmitted by direct calls to both the GSM network and PSTN switching subsystem at 9.6 to 14.4 Kbit/sec. It is easy to establish a GSM CSD connection on the dial-up side using the **ATD** command and the target phone number. If the modem is intended to receive calls, the AT command ATS0=<n> can be used to automatically answer a call, where <n> is the number of rings before answering.

OnCell G2111 AT Command Set

On the Document and Software CD, please refer to
/**AT_Commands/ G2111_AT_Commands.pdf**
for information on AT commands.

Female DB9 Connector

The RS-232 connector uses standard pin assignments. A serial cable such as Moxa's CBL-F9M9-150 (100 cm) or CBL-F9M9-20 (20 cm) can be used. To connect the OnCell to a USB port on a laptop, you can use a USB-to-serial product such as Moxa's UPort 1110.