

# **BluePort XP Quick Start Guide**

**Revision A September 5, 2007  
Document Part Number GC-800-321a**



---

## Copyright and Trademark

Copyright © 2007, Grid Connect, Inc. All rights reserved.

No part of this manual may be reproduced or transmitted in any form for any purpose other than the purchaser's personal use, without the express written permission of Grid Connect, Inc. Grid Connect, Inc. has made every effort to provide complete details about the product in this manual, but makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability or fitness for a particular purpose. In no event shall Grid Connect, Inc. be liable for any incidental, special, indirect, or consequential damages whatsoever included but not limited to lost profits arising out of errors or omissions in this manual or the information contained herein.

Grid Connect, Inc. products are not designed, intended, authorized or warranted for use as components in systems intended for surgical implant into the body, or in other applications intended to support or sustain life, or in any other application in which the failure of a Grid Connect, Inc. product could create a situation where personal injury, death, or severe property or environmental damage may occur. Grid Connect, Inc. reserves the right to discontinue or make changes to its products at any time without notice.

Grid Connect and the Grid Connect logo, and combinations thereof are registered trademarks of Grid Connect, Inc. All other product names, company names, logos or other designations mentioned herein are trademarks of their respective owners.

### Grid Connect

1630 W. Diehl Road  
Naperville, IL 60563, USA  
Phone: 630.245.1445

### Technical Support

Phone: 630.245.1445  
Fax: 630.245.1717  
On-line: [www.gridconnect.com](http://www.gridconnect.com)

---

## Disclaimer and Revisions

The information in this guide may change without notice. The manufacturer assumes no responsibility for any errors that may appear in this guide.

Date	Rev.	Author	Comments
09/05/07	A	GR	Preliminary Release

---

## Warranty

Grid Connect warrants each product to be free from defects in material and workmanship for a period of **ONE YEAR** after the date of shipment. During this period, if a customer is unable to resolve a product problem with Grid Connect Technical Support, a Return Material Authorization (RMA) will be issued. Following receipt of a RMA number, the customer shall return the product to Grid Connect, freight prepaid. Upon verification of warranty, Grid Connect will -- at its option -- repair or replace the product and return it to the customer freight prepaid. If the product is not under warranty, the customer may have Grid Connect repair the unit on a fee basis or return it. No services are handled at the customer's site under this warranty. This warranty is voided if the customer uses the product in an unauthorized or improper way, or in an environment for which it was not designed.

Grid Connect warrants the media containing software and technical information to be free from defects and warrants that the software will operate substantially for a period of 60 DAYS after the date of shipment.

In no event will Grid Connect be responsible to the user in contract, in tort (including negligence), strict liability or otherwise for any special, indirect, incidental or consequential damage or loss of equipment, plant or power system, cost of capital, loss of profits or revenues, cost of replacement power, additional expenses in the use of existing software, hardware, equipment or facilities, or claims against the user by its employees or customers resulting from the use of the information, recommendations, descriptions and safety notations supplied by Grid Connect. Grid Connect liability is limited (at its election) to:

- 1) refund of buyer's purchase price for such affected products (without interest)
- 2) repair or replacement of such products, provided that the buyer follows the above procedures.

There are no understandings, agreements, representations or warranties, expressed or implied, including warranties of merchantability or fitness for a particular purpose, other than those specifically set out above or by any existing contract between the parties. The contents of this document shall not become part of or modify any prior or existing agreement, commitment or relationship.



# Table of Contents

<b>1. Quick Start Guide</b> .....	<b>1-1</b>
1.1 Overview .....	1-1
1.2 BluePort XP Configuration Switches .....	1-2
1.3 RS232 Physical Port Description.....	1-2
1.4 Two BluePort XP serial devices as a Cable Replacement.....	1-3
1.4.1 Configuration Options .....	1-3
1.4.2 Opening a BluePort XP .....	1-4
1.4.3 Selecting DTE or DCE .....	1-4
1.4.4 Clear to Send Option .....	1-4
1.4.5 Master and Slave .....	1-5
1.4.6 Select the Baud Rate.....	1-5
1.4.7 Select Auto Master .....	1-5
1.4.8 Select Auto Discover.....	1-5
1.4.9 Factory Defaults .....	1-5
1.4.10 Connecting Power.....	1-5
1.4.11 Quick Test .....	1-6
1.4.12 Hyperterminal Setup.....	1-6

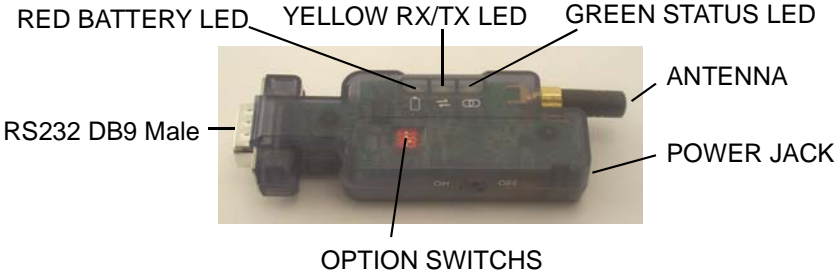


# 1. Quick Start Guide

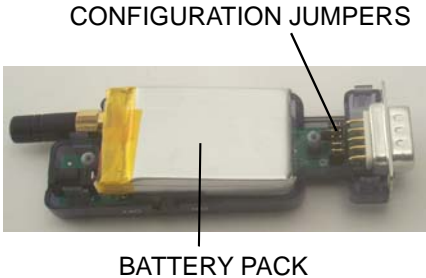
If you purchased a pair of BluePort XP radios for the purpose of replacing a cable, follow the instructions below.

## 1.1 Overview

The following drawings show the top and bottom views of the BluePort XP. The bottom view shows the jumpers near the DB9 RS232 connector.

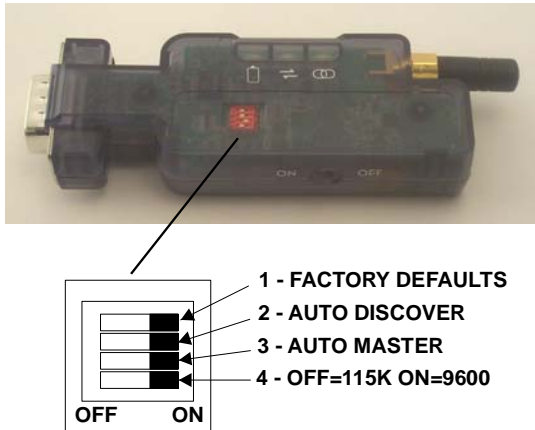


**Figure 1 - BluePort XP Top View**



**Figure 2 - BluePort XP Bottom View with case removed**

## 1.2 BluePort XP Configuration Switches



*Figure 3 - Configuration Switches*

## 1.3 RS232 Physical Port Description

The pin names and descriptions are shown in the following table. Please note that many signal pins are tied to other pins. For example, DTR is tied to DSR and DCD. When DTR goes high, it forces a high signal to Carrier Detect (DCD) and Data Set Ready (DSR).

Note: The BluePort XP is a 9-pin MALE connector. Your cable connectors must be female. Use a gender changer to match cable connectors.

Pin	Description	Source
1 -DCD	Carrier Detect <b>Tied to 4, 6, 9</b>	
2 - RX	Receive Data	Attached Device (In)
3 - TX	Transmit Data	Host Device (Out)
4 - DTR	Data Terminal Ready <b>Tied to 1, 6, 9</b>	
5 - GND	Ground	
6 - DSR	Data Set Ready <b>Tied to 1, 4, 9</b>	
7 - RTS	Request to Send	Host Device (Out)
8 - CTS	Clear to Send	Attached Device (In)
9 -RNG	Ring <b>Tied to 1, 4, 6</b>	Attached Device (In)

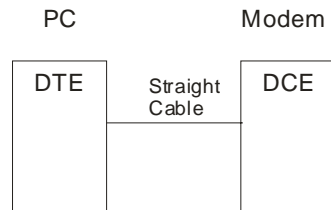
*Table 1 - RS232 DB9 Male Pin Descriptions*

## 1.4 Two BluePort XP serial devices as a Cable Replacement

A typical connection between a Computer (DTE) and a Modem (DCE) is shown in *Figure 4*. A Modem is used in this illustration because it represents many devices that can be connected to a computer using a serial cable. You can connect badge readers, CNC machines, label printers, ATMs or most any device that uses an RS232 serial interface. We say *most* devices because there are some devices that use all the RS232 signals or others may modify the RS232 signal in a way that cannot be recognized by the BluePort XP. However, if your device can be connected to your computer through an RS232 cable, there is a good chance it can be connected to a BluePort XP.

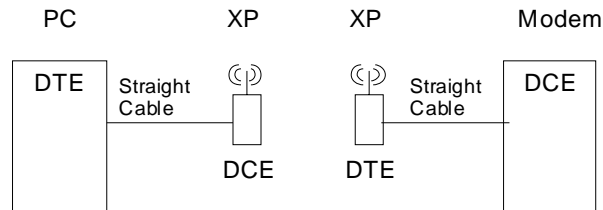
Note that in *Figure 4* the PC is marked as a DTE device, which means Data Terminal Equipment. The Modem is marked as DCE or Data Communications Equipment. The RS232 serial standard defines the flow of signals and the names of the signal pins based on whether the device is DTE or DCE. Remember that the PC is generally a DTE device and the Modem is a DCE device.

Note that in *Figure 4* the cable between the PC and the Modem (or your device) is a straight cable, which means that the RS232 standard for connecting serial devices is used. For example, Transmit Data leaves the PC on pin 3 of the 9-pin connector and enters pin 3 of 9-pin connector on the Modem (or your device). See the RS232 User Manual for more details.



**Figure 4 - PC to Modem**

A pair (2) of BluePort XP wireless radios will allow you to remove the straight cable and replace it with a wireless connection. The connection looks something like *Figure 5*.



**Figure 5 - BluePort XP radio link**

It is important to note that the radio attached to the PC is marked DCE and the radio attached to the Modem is marked DTE. When you started with just a cable, the PC (a DTE device) was connected to a Modem (a DCE device). Now that two new devices have been connected, the naming conventions have to remain the same. The PC as a DTE device must be connected to a DCE configured radio.

Across the radio link we have a similar situation. The Modem as a DCE device must be connected to a DTE configured radio.

### 1.4.1 Configuration Options

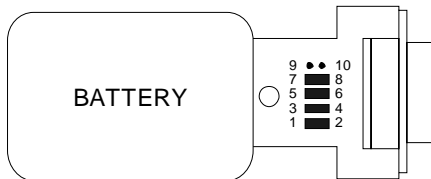
Configuration options for the BluePort XP are provided by jumper pins on the circuit board. Remember that the jumper pins allow you to configure the radio module as a DTE or DCE device for the RS232 signals.

## 1.4.2 Opening a BluePort XP

To open a BluePort XP, remove the screws on the back of the case. The circuit board is attached to the DB9 connector.

## 1.4.3 Selecting DTE or DCE

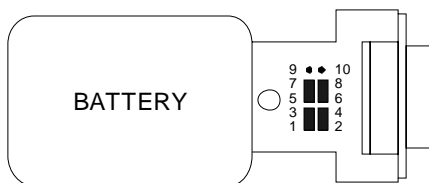
Once you remove the circuit board, locate the option jumpers using the drawing below. The following drawing shows the jumpers set for a **DTE** device.



DTE Factory Default, RX=2, TX=3, RTS=7, CTS=8

*Figure 6 - Option Jumpers for DTE*

The following drawing shows the jumper options set for a DCE device.

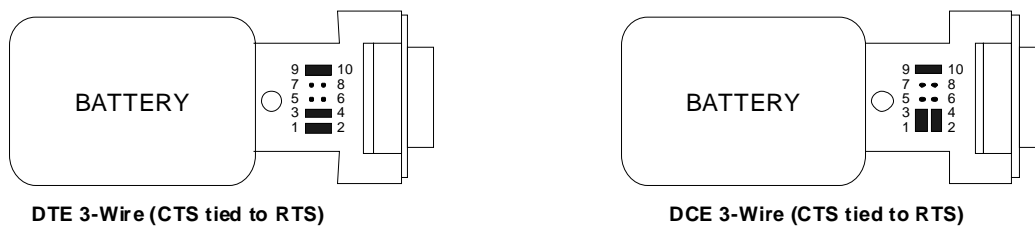


DCE RX=3, TX=2, RTS=8, CTS=7

*Figure 7 - Option Jumpers for DCE*

## 1.4.4 Clear to Send Option

Your device must be capable of supplying the CTS Clear to Send signal because the BluePort XP radio uses this signal to control the flow of data. If your device does not have an active CTS signal, or you are not sure, you can jumper the internal option pins 9 and 10 as shown below. The jumper will tie CTS to RTS internally. If you use a jumper between 9 and 10, you will not need the other jumpers for RTS and CTS.



DTE 3-Wire (CTS tied to RTS)

DCE 3-Wire (CTS tied to RTS)

*Figure 8 - CTS to RTS Jumper*

### 1.4.5 Master and Slave

When two units are used for a cable replacement, one unit is setup as the **Master** and the other is setup as the **Slave**. It does not make any difference if the Master is connected to the PC or to the Modem. Typically, the Master is associated with the PC, so we will continue that designation. The selection is done using the Auto Master switch. Setting the switch **ON** will make the unit a **Master**. Setting the switch **OFF** will make it a **Slave**.

Pick one of your units to be Master. This unit connects to the PC.

### 1.4.6 Select the Baud Rate

There are two SWITCH selectable Baud rate settings, 115K or 9600. You can change the baud rate to 1200, 2400, 4800, 9600, 38.4K, 57.6K, 115K, 230K or 460K by entering the command mode and selecting a different baud rate. This is the baud rate of the serial device connected to the BluePort XP.

Set your PC baud rate to 115K. Switch 4 set to OFF will set the baud rate to 115K Baud. Set Switch 4 the same on the Master and Slave.

OR

Set your PC baud rate to 9600. Switch 4 set to ON will set the baud rate to 9600 Baud. Set Switch 4 the same on the Master and Slave.

### 1.4.7 Select Auto Master

When the **Master** has Switch 2 and Switch 3 ON, it searches for a Slave, stores the Slave identification, and connects to the Slave if the Slave has Auto Discover Switch 2 is ON.

Set the Master with Switch 2 and Switch 3 ON.

### 1.4.8 Select Auto Discover

Auto Discover allows a Master device to read the identification number of a Slave and automatically connect.

Set the Slave with Switch 2 ON and Switch 3 OFF. This unit is now a Slave with Auto Discover.

### 1.4.9 Factory Defaults

Switch 1 is normally set OFF. Use the following procedure ONLY if you need to completely reset the unit to factory default settings.

Set this switch **ON**, power up the unit, and toggle the switch from ON to OFF 2 or 3 times to return the unit to factory settings.

### 1.4.10 Connecting Power

Connect the 5VDC, 300ma wall plug adapter to the BluePort XP power jack and turn the switch ON. The Green LED will start to blink. The battery LED will show RED to indicate it is charging.

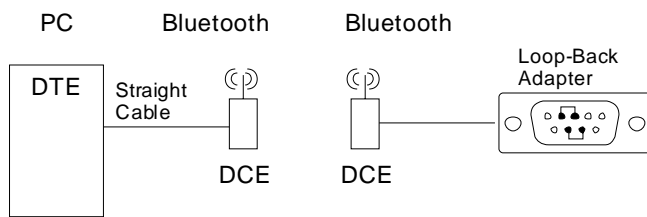
### 1.4.11 Quick Test

When you power up both devices, the MASTER finds and stores the SLAVE address and auto connects. The green LED on both units will flash and within a short time should be on SOLID. The solid LED indicates the units are properly linked.

Verify data flow by observing the Yellow LED. Flashing indicates data flow, both transmit and receive.

You can verify communications by connecting one BluePort XP to your PC and connecting a Loop-back connector to the other BluePort XP as shown in the drawing below. The loop-back adapter will take any received characters and send them back. The loop-back adapter connects the transmit and receive lines together and the RTS/CTS lines together. If you use a program like Hyperterminal to connect to the serial port of one of the BluePort XP radios, then you will see a character displayed on the screen each time you send a character. See *Hyperterminal Setup* on page 1-6 for instructions.

First make sure the units are linked by observing the steady green LED on both units. When you type a character on the PC side, the yellow LED on the BluePort XP attached to it will blink. If the other BluePort XP is configured properly, the yellow LED on it should also blink, indicating data is being received and transmitted. Typing a character in Hyperterminal will send the character out the PC serial port to the attached BluePort XP, through the radio link to the other BluePort XP, loop around from the receive line to the transmit line and come back to the PC.



**Figure 9 - Loop Back Test**

### 1.4.12 Hyperterminal Setup

1. Start Hyperterminal and enter a name for the connection. When the **Connect To** dialog box appears, select a COM port (example COM2) from the **Connect Using** list box and click OK.
2. Ignore the COMx Properties for now and click OK. The status bar at the bottom of the screen may indicate Auto Detect. Click the **Disconnect** icon.
3. Click on the **Properties** icon, select the **Connect To** tab and click the **Configure** button below the selected COM port. Set to 9600, 8, None (parity), 1 None (Flow Control). Verify the settings and click OK.
4. Select the **Settings** tab. Change the Emulation from Auto detect to VT100. The status line at the bottom of the Hyperterminal window should show **VT100** and **9600 8-N-1**.
5. Click the **Call** icon to complete the setup.