

**BLUECOMMS  
Bluetooth Communicator**

**Model BC1**

**OPERATION MANUAL**

HYDROLOGICAL SERVICES Pty Ltd  
48-50 Scrivener Street  
Liverpool NSW 2170  
Australia  
Ph. 61 2 9601 2022 Fax. 61 2 9602 6971  
Internet: [www.hydrologicalservices.com](http://www.hydrologicalservices.com)  
E-Mail: [sales@hydrologicalservices.com](mailto:sales@hydrologicalservices.com)

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# 1. Introduction

The Hydrological Services BlueComms BC1 has been designed using surface mount technology to provide a small, robust, Bluetooth™ interface for retrieving data from the MiniLog data logger in the field using a PDA. The unit is powered by 2 x AA alkaline batteries. The indicator LED gives immediate feedback of the battery condition as well as the Bluetooth connection status.

Please note that this device is intended for short term use to retrieve data, or change settings – it is not intended to provide a permanent Bluetooth interface to a MiniLog data logger.



What is Bluetooth ?

Bluetooth is the code name for a new wireless technology developed by Ericsson Inc., Intel Corp., Nokia Corp. and Toshiba. The technology enables data connections between electronic devices such as desktop computers, wireless phones, electronic organizers and printers in the 2.4 GHz range. Bluetooth replaces cable or infrared connections for such devices.

(Definition from [www.braddye.com/glossary.html](http://www.braddye.com/glossary.html) )

## 2. Product Overview

### 2.1 Overview

The Hydrological Services BlueComms Communicator is a Bluetooth™ to RS232 interface with several unique features.

- DB9 Male connector for direct connection to the HS MiniLog.
- Self powered by 2 x AA alkaline batteries.
- Protected against incorrect installation of batteries.
- Provides 6V DC power to the MiniLog during a communication session.
- Automatically powers on when plugged into the MiniLog.  
(when unplugged, power consumption is zero)
- Monitors and indicates the internal AA battery status.
- Indicates the Bluetooth connection status.
- Rubber sided enclosure for positive grip.
- Up to 10m (30ft) range.



### 3. Installation

The BlueComms has a single DB9 male connector, which has been configured for direct connection to the HS MiniLog ML1. Note that the BlueComms battery is not connected until it is plugged into the MiniLog – at which time pins 7 is looped to pin 8. This then powers the BlueComms unit and in turn provides 5.5V on pin 4 to power the MiniLog during the communication session. When the BlueComms unit is unplugged from the MiniLog, the battery is disconnected and no power is consumed.

#### 3.1 Hardware Connections

The DB9 male connector on the BC1 is as follows :-

| Pin No. | BlueComms BC1 Signal Name<br>(DB9 Male) | Signal Direction | ML1 Signal<br>DB9 Female |
|---------|---|------------------|--------------------------|
| 1       | N.C.                                    | ←                | O.C. Output              |
| 2       | Rx (RS232 Serial data input)            | ←                | Tx                       |
| 3       | Tx (RS232 Serial data output)           | →                | Rx                       |
| 4       | Pwr to MiniLog (5.5V DC)                | →                | ExtPwr —                 |
| 5       | Gnd                                     |                  | Gnd                      |
| 6       | N.C.                                    |                  | Ext Pwr —                |
| 7       | Battery Out (2 x AA = 3V DC)            | →                | Ext Pwr —                |
| 8       | Battery In (3V DC)                      | ←                | Ext Pwr —                |
| 9       | N.C.                                    | →                | Bucket Tip I/P           |

**Notes:**

1. When the BC1 is directly connected to a MiniLog the following handshake signals are linked :
  - Pins 4 and 6 are linked together inside the ML1.
  - Pins 7 and 8 are linked together inside the ML1.
  
2. When the BC1 is directly connected to an ML1, sufficient power is extracted on pin 4 to power the ML1 – which prevents power drain from the internal ML1 lithium battery while communications is in progress.

### 3.2 Baud Rate

The BlueComms BC1 is programmed to communicate at 9600 baud 8/N/1. Therefore the MiniLog **must** also be setup for communications at 9600 baud.

### 3.3 Batteries

The BlueComms BC1 operates on 2 x AA alkaline batteries. To change the batteries :

- Remove the screw securing the battery cover.



- Slide open the battery cover.



- Replace the 2 AA batteries – noting the polarity.



- Replace the battery cover and the securing screw.

### 3.4 LED Indicator

The LED Indicator serves 4 functions :

- **Low battery indicator** – when the BC1 is first plugged in, the battery voltage is checked, and if it falls consistently below 2.8V, the LED will flash once every 2 seconds. Even with a low battery, the BC1 will connect and continue to operate for as long as possible. (It is however advisable to change the batteries.)
- **Searching** – The BC1 is searching (or waiting) for a Bluetooth connection. During this time the LED flashes once every 0.5 second.
- **Connected** – When a valid Bluetooth connection has been established, the LED will turn on steady.
- **System Fault** – If the Bluetooth module has lost its initialisation, the LED will flash twice quickly every two seconds. If this condition is ever experienced, the BC1 should be returned to Hydrological Services for reprogramming.

### 3.5 Connection

Simply plug the BlueComms Communicator into the MiniLog. The red LED will start flashing, indicating it is searching (or waiting) for a Bluetooth connection.

If physical space does not permit the BlueComms to be plugged into the MiniLog, then use a DB9 male to DB9 female cable (1 to 1). This is the same cable that is used to provide communications between the MiniLog and a PC.



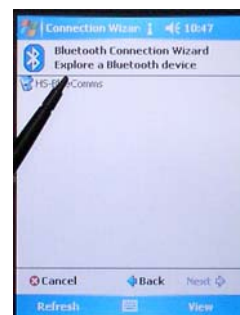
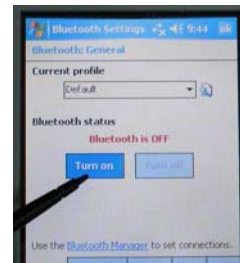
## 4. Operation

### 4.1 Connection to a PDA

Once the BlueComms Communicator is plugged into the MiniLog, the operator must connect to it from their PDA via a Bluetooth wireless connection. The following procedure is indicative only, and depends upon the PDA being used.

#### First time connection / setup :

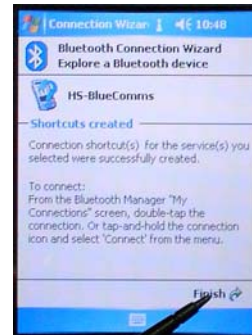
- Select the PDA Bluetooth Settings menu
- Turn the PDA Bluetooth on
- Select the PDA Bluetooth Manager Menu
- Select the menu item New and then scroll down to and select “Explore a Bluetooth Device”
- This should discover the “HS-BlueComms”. Click on it to discover the properties.



- The HS-BlueComms will be discovered as a Generic Serial Device. Click on Generic Serial and then click Next.



- This completes the discovery of the HS-BlueComms. Now click Finish.



- Select the PDA Bluetooth Manager



- Select and Hold on the HS-BlueComms – then click on Connect. The LED on the BlueComms will come on steady when the connection is established.



- Open your PDA communications application such as PDAComm and select the “outbound” Bluetooth comms port.

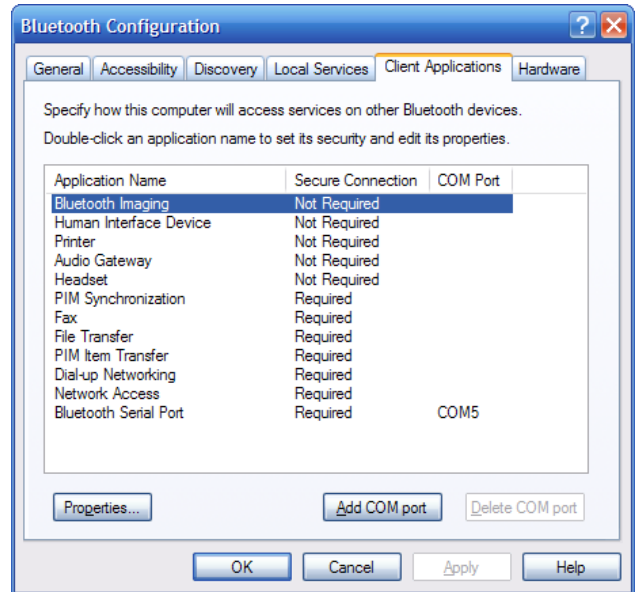
**Note:** Bluetooth makes use of 2 virtual serial ports : one “inbound” and one “outbound”. The inbound port is for accepting inbound serial connections, and the outbound port is for initiating outbound serial connections.(On our HP iPAQ COM8 is the outbound serial port)

- You can now communicate directly to the MiniLog from your PDA.

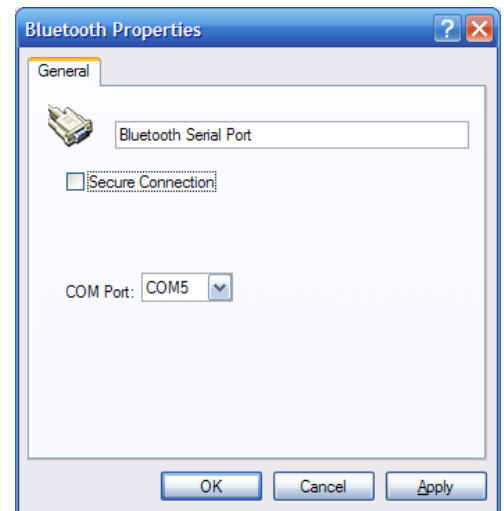
**\*\*Note\*\*** : On future connections you **ONLY** need to open the comms application.

## 4.2 Connection to a Notebook

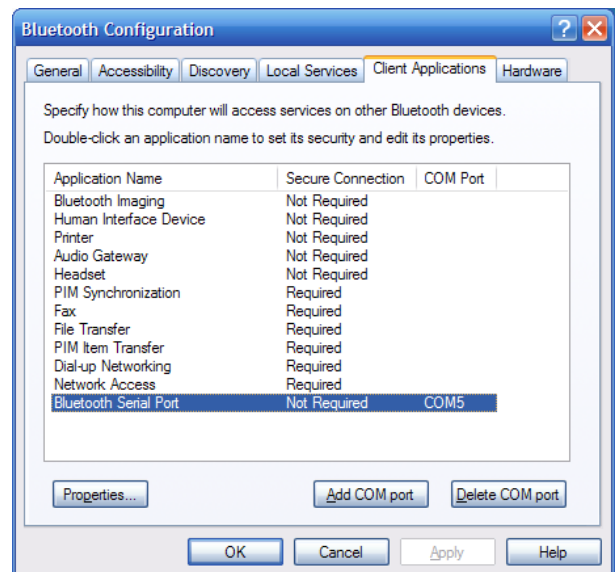
- Right click on the Bluetooth logo on the bottom right of your Taskbar.
- Select “Advanced Configuration”
- Select the “Client Applications” tab



- If the “Bluetooth Serial Port” item has “Secure Connection” set to “Required” then click on the “Bluetooth Serial Port” item and then click properties.
- Uncheck the “Secure Connection”
- Click OK



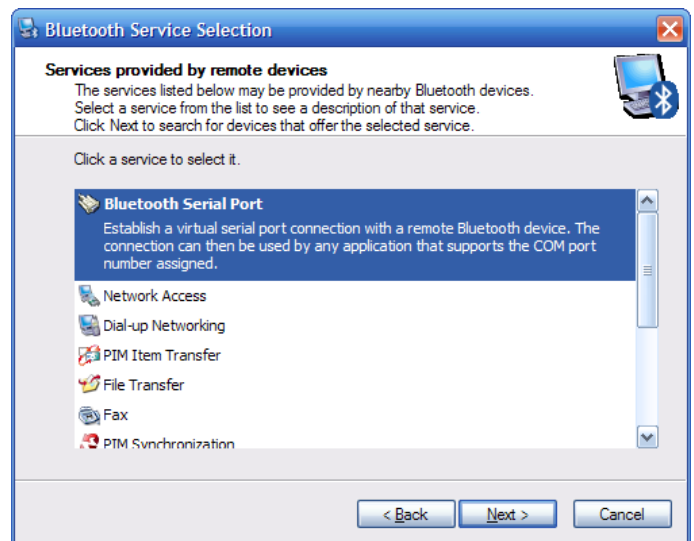
- You should now have the “Secure Connection” for the “Bluetooth Serial Port” set to “Not Required”
- Click OK.



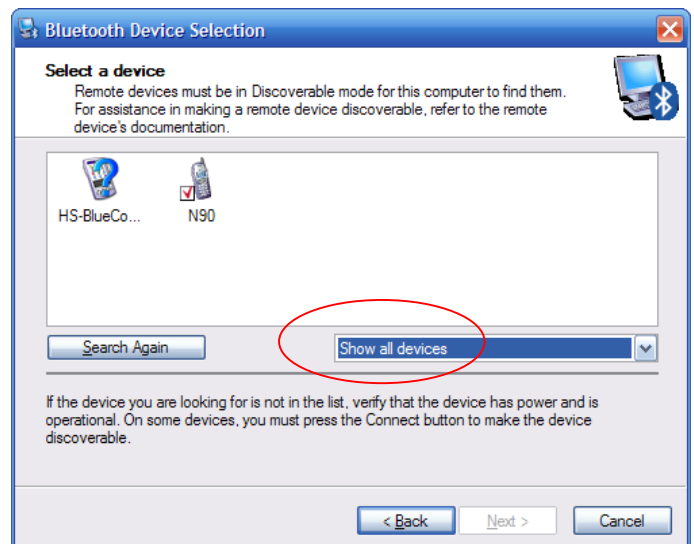
- Make sure the BlueComms is plugged into the MiniLog.
- Right click on the Bluetooth logo on the bottom right of your Taskbar.
- Select “Bluetooth Setup Wizard”
- Select “I know the Service.....”
- Click Next



- Select the “Bluetooth Serial Port” and click Next



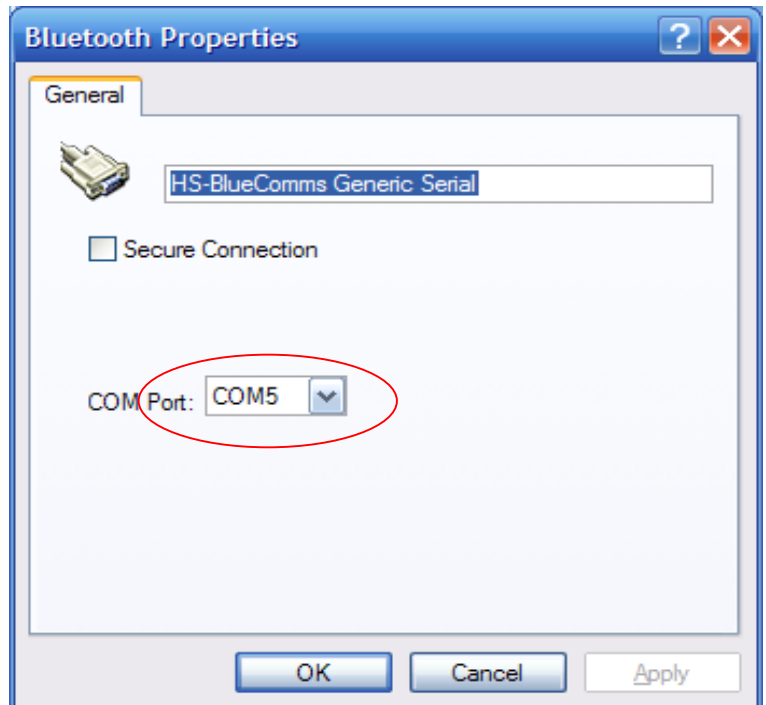
- While Searching, make sure the dropbox has “Show all Devices” selected.
- Click on the HS-BlueComms device and click Next.



- Click on the Configure button



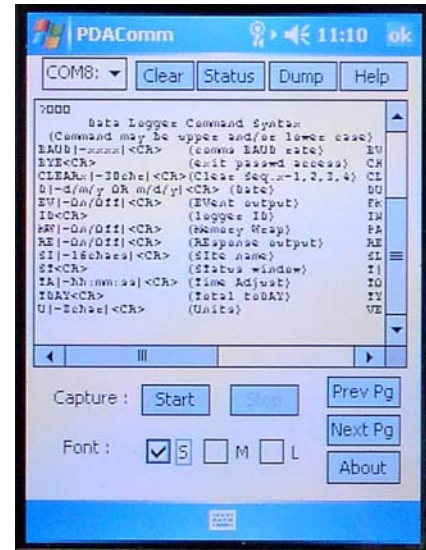
- Take note of the COM port number
- Click OK
- You will then return to the previous screen. Click Finish.



The Bluetooth communication setup between the PC and the BlueComms is now complete.

### 4.3 Comms Applications

When using a PDA, Hydrological Services have a custom communications application called PDAComm, which provides a simple “HyperTerm” like interface to the MiniLog. Buttons allow commonly used commands such as Status, Dump, Help to be easily executed, and the popup keyboard allow any command to be performed. Data can also be captured to a file, for later “ActiveSync” transfer to a PC.

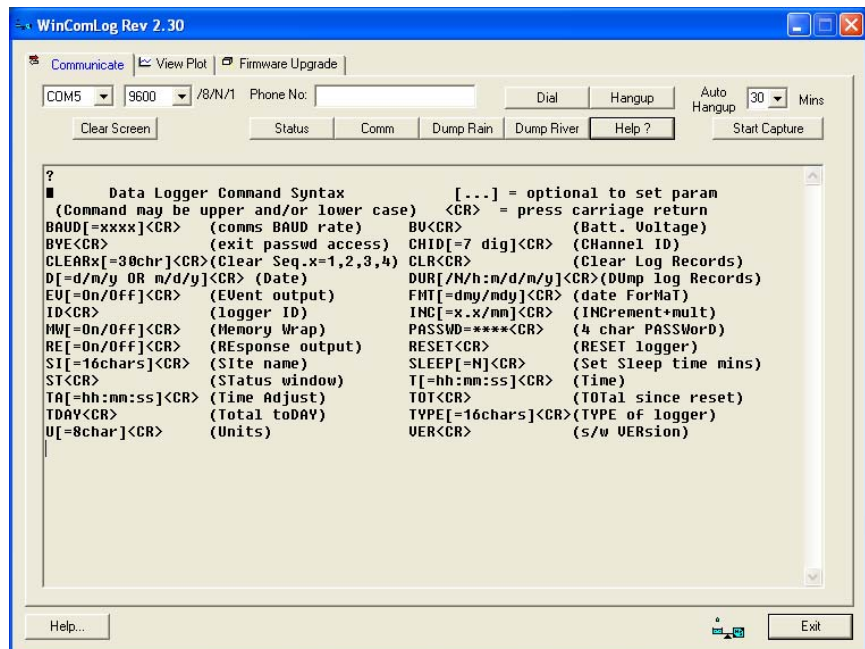


When using a PC (or notebook), Hydrological Services have a full featured comms application called WinComLog, which also provides a simple “HyperTerm” like interface to the MiniLog. Simply start the application and select the appropriate COM port.

The LED on the BlueComms should come on steady, to indicate a connection is established.

Test communications by clicking on Help a few times. A screen full of help information should appear.

WinComLog allows graphing of the data as well as upgrading firmware.



## 5. Specification

### 5.1 Hardware Specification

|                |  |
|----------------|--|
| Bluetooth      | Class 2 / Output power 2.5mW (4dBm)<br>Compliant Bluetooth Spec V1.1<br>(operating at 2.4GHz)<br>Up to 10m (30ft) range          |
| Communications | RS232 Port (Tx, Rx) @ 9600 baud 8/N/1  |
| Connections    | 1 x DB9 Male   |
| Indicators     | LED indicator for Battery and Bluetooth status   |
| Power Source   | 2 x Internal AA alkaline cells<br>30mA giving 80 hours continuous operation<br>translating to about 2 to 4 months of normal use. |
| Dimensions     | 97mm x 60mm x 27mm (L x W x D)   |
| Weight         | 120 grams  |
| Environmental  | -20C to + 70C at 95% RH Non Condensing<br>(No IP rating)   |