HB-2000 Handheld RFID Reader

HB-2000

User Operation Manual - 041478

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AWID

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FCC COMPLIANCE

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 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 party responsible for compliance could void the user's authority to operate this equipment.

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.

Radiation Exposure Statement:
The product complies with the FCC portable RF exposure limit set forth for an uncontrolled environment and is safe for intended operation as described in this manual. Further RF exposure reduction can be achieved if the product can be kept as far as possible from the user body or set the device to lower output power if such function is available.

Table of Contents

REVISION HISTORY

Version No.	Date	Sections Affected	Remarks
1.0	9/2013	-	Initial version

1 Introduction

AWID's HB-2000 is a handheld terminal supporting multi-protocol operations. Designed for convenience, mobility and greater flexibility, the HB-2000, via Bluetooth connection, can be operated with a PDA, a Smartphone or a PC/Notebook, to receive and transmit data of RFID labels.

Equipped with a circular polarized antenna, the HB2000 is optimized to deliver up to 5 feet RFID tag read distance with only ½ Watt RF output power. With communication options include Bluetooth Class2, LED and Trigger it provides flexibility for transmitting data to enterprise data management systems.

1.1 Special Features

- Multi-Protocol: EPC C1 Gen 2, ISO Type B/C
- Thin passive tags with long-range performance
- High performance circular polarized antenna
- Operated with a PDA or a Smart Phone or a PC/Notebook

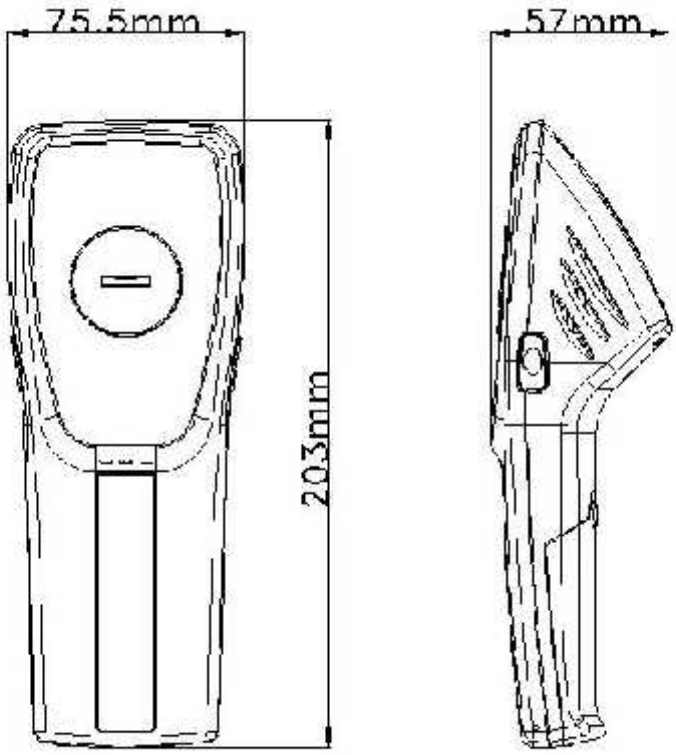
2 Specifications

Common RF Specifications (North America Versions only)

Transmit frequency	902-928 MHz (ASK)
Receiver frequency	902-928 MHz (ASK)
Hopping channels	50 Channels
Channel spacing	200kHz
Hopping sequence	Pseudo Random
Protocol language	EPC C1 Gen 1 & 2, ISO Type B, C
Read range	Depends on type & size of labels used
Output power	26.82 dBm

Handheld Reader (HB-2000)

Operating temperature range	-20° C to +50° C (-4° F to 122° F)
Color	White (front) Grey (back)
Link interface	Bluetooth Class 2
Dimension	8 x 3 x 2.2 inches (203 x 75.5 x 57 mm)
Weight	250 g (8.8 oz battery included)
Battery	7.4 V / 1300mAh



3 Setting Up HB-2000

This section describes the main components constituting HB-2000 and their functionality.

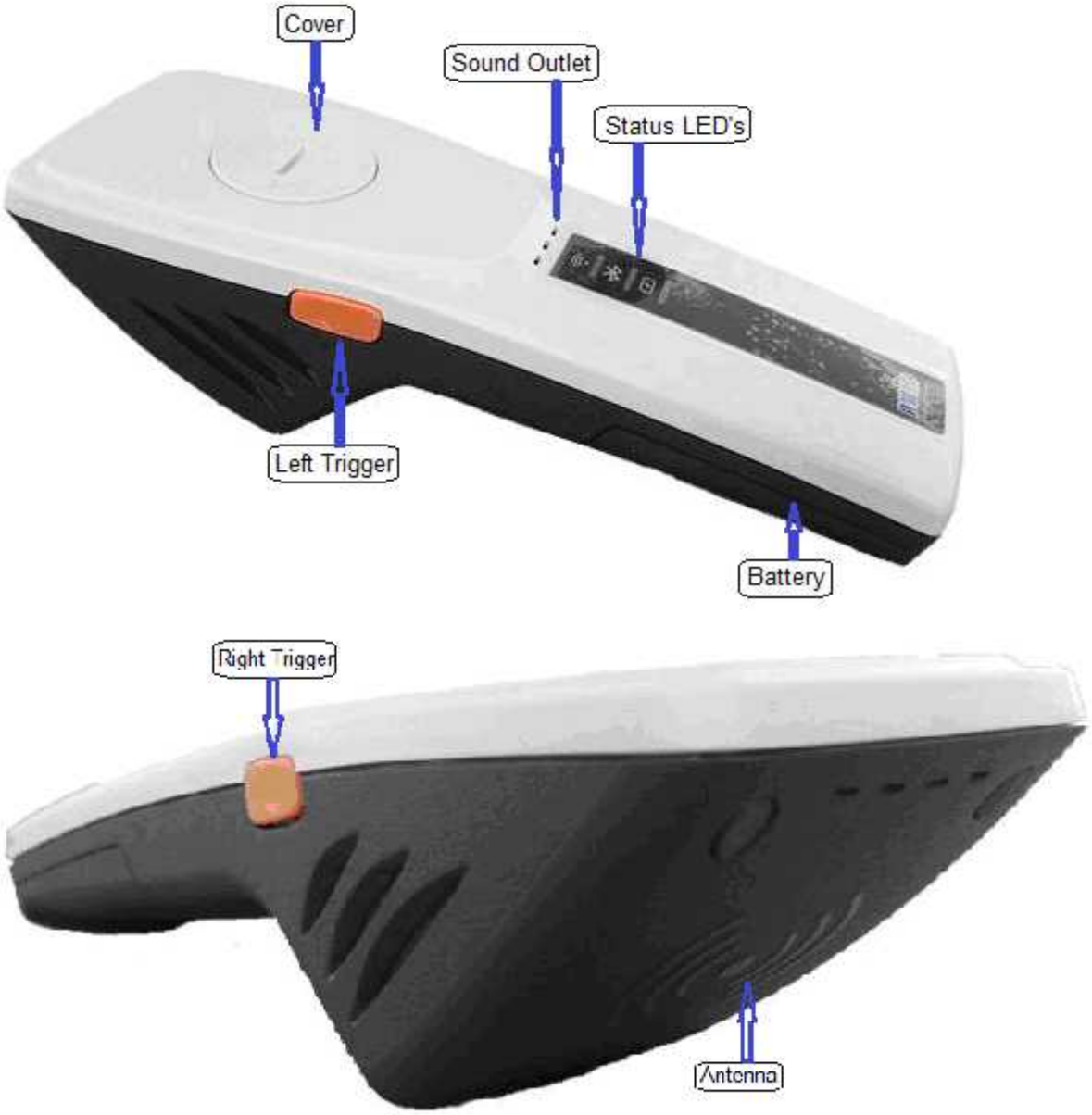
Parts List

Verify that all items listed below are present:

- HB-2000 Terminal
- Power Supply
- Battery

3.1 HB-2000 Terminal

The HB-2000 terminal is embedded with an UHF RFID module, UHF antenna, battery and external (left and right) triggers, buzzer sound outlet and LED status indicators.



3.2 Scanner Triggers

Located on left and right sides of the terminal for user to press for reading RFID tags, release to stop reading.

1) Press either the left or right trigger to send command reading RFID tags, release the (depressed) trigger to send the stop command.
2) Simultaneously press both left and right triggers for more than 2 seconds puts HB-2000 in sleep mode.
3) With HB-2000 in sleep mode, simultaneously press both left and right triggers for more than 2 seconds places HB-2000 in stand-by mode: both RFID module and Bluetooth stay off.

4) To conserve energy, with Bluetooth connected, hold either the left or right trigger for an extended time period will shut off RFID, the green LED goes off (Bluetooth connection still intact).
5) With Bluetooth connected, if RFID is off (dimmed green LED), pressing either trigger once will turn on RFID (green LED lights up).

3.3 Circular Cover

- Turn the circular cover left (counterclockwise) to open, right (clockwise) to close.

3.4 Installing Battery

- depress the battery compartment open/close latch (orange)

- at same time pull back battery compartment cover until released from latch, pull up.

- insert battery into compartment, be sure the blue triangle points upward

- press the cover toward orange latch until snapped in place

3.5 Power Charging

Use Power Supply for Terminal with Battery

1) Power Supply Specifications
   - Input: 100-240 VAC 0.55 A, 50-60Hz
   - Output: 12 VDC 2A / Plug

2) Use Manufacturer Supplied Power Supply
3) Must first have battery in compartment
4) Refer to 3.6 for LED info.

3.6 LED indicators on terminal

System LED

1) Steady Green - Stand-by
2) Blinking Orange - Data
3) Dimmed - HB-2000 in Sleep

Bluetooth LED

1) Blinking Blue - Bluetooth Disconnected
2) Steady Blue - Bluetooth Connected
3) Dimmed - HB-2000 in Sleep

Power LED

Battery Only

1) Steady Green - Sufficient (battery) power for normal tag operations
2) Steady Red - Warning of insufficient power (either recharge or replace battery)
3) Dimmed - (a) Battery Power used up and (b) HB-2000 in Sleep

Power Supply Plugged In

a. With Battery
    1) Steady Orange - Battery Charging
    2) Steady Green - Battery fully charged, 5 minutes after Bluetooth disconnect the unit goes into sleep mode, all LED's go off
b. Without Battery - Steady Green indicating full power

3.7 Buzzer

- A longish sound is made to alert user when either of the following occurs:

    1. from sleep to ready
    2. from ready to sleep

- A shorter sound is made when an RFID tag is read. It can be muted by administering the setting through the connecting PC, tablet or Smartphone by sending a command to HB-2000.

4 HB-2000 System Reset

When a system reset is called for, remove the battery, wait until HB-2000 is completely powered off then replace the battery.

5 Bluetooth Module and Connectivity

- Connection Settings: 57600,8,N,1
- Version: Bluetooth Class 2 or better
- Bluetooth Module Function: Data exchange with PC, tablet or Smartphone via Bluetooth after are successful pairing.
- Pairing Success: Once paired successfully, the Bluetooth Module shuts down its search mode. In other words, it no longer broadcasts and looks for other devices, even after disconnect it won't resume in search mode. The Bluetooth Module remembers the connected device from the most recent successful pairing.

  Unless the HB-2000 is reset resulting in a re-paring, the Bluetooth Module will not accept a pairing request from another device. Even after a power reset (e.g., due to battery replacement), the module still remembers the most recent successfully paired-up device.

- Bluetooth Module provides a "connected/disconnected" status indicator.
- Bluetooth Module provides a "successful pairing" status indicator.

6 Pairing HB-2000 with a PC

6.1 Add Bluetooth Device HB-2000

Clicking the Bluetooth icon on PC[1], without any Bluetooth device paired an empty window[2] is displayed as shown below.

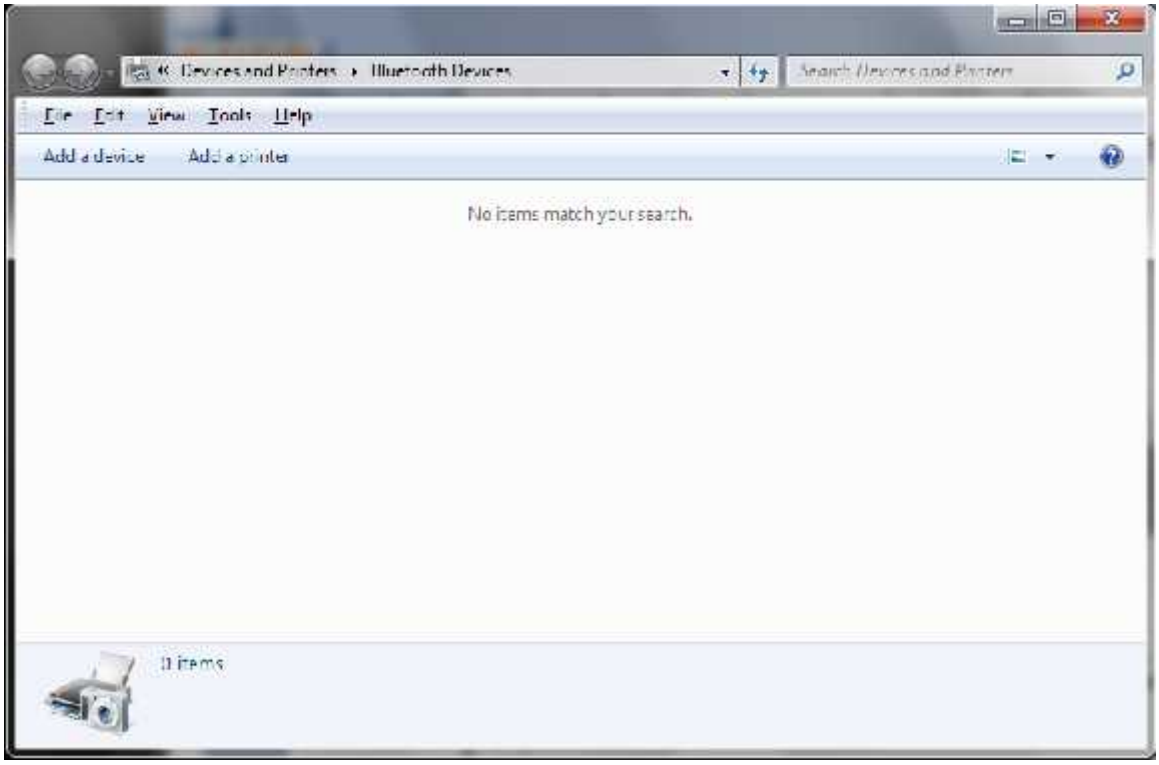


Figure 1 Initial Bluetooth Devices Window

6.2 Searching HB-2000

Click the "Add a device" button launches a search to identify Bluetooth device candidates. An example result window is shown in Figure 2 where an HB-2000 is listed.

[1] Either with built-in Bluetooth functionality or through use of a Bluetooth Dongle.
[2] Depending on Bluetooth utilities in use, the interface (windows) may look quite different.

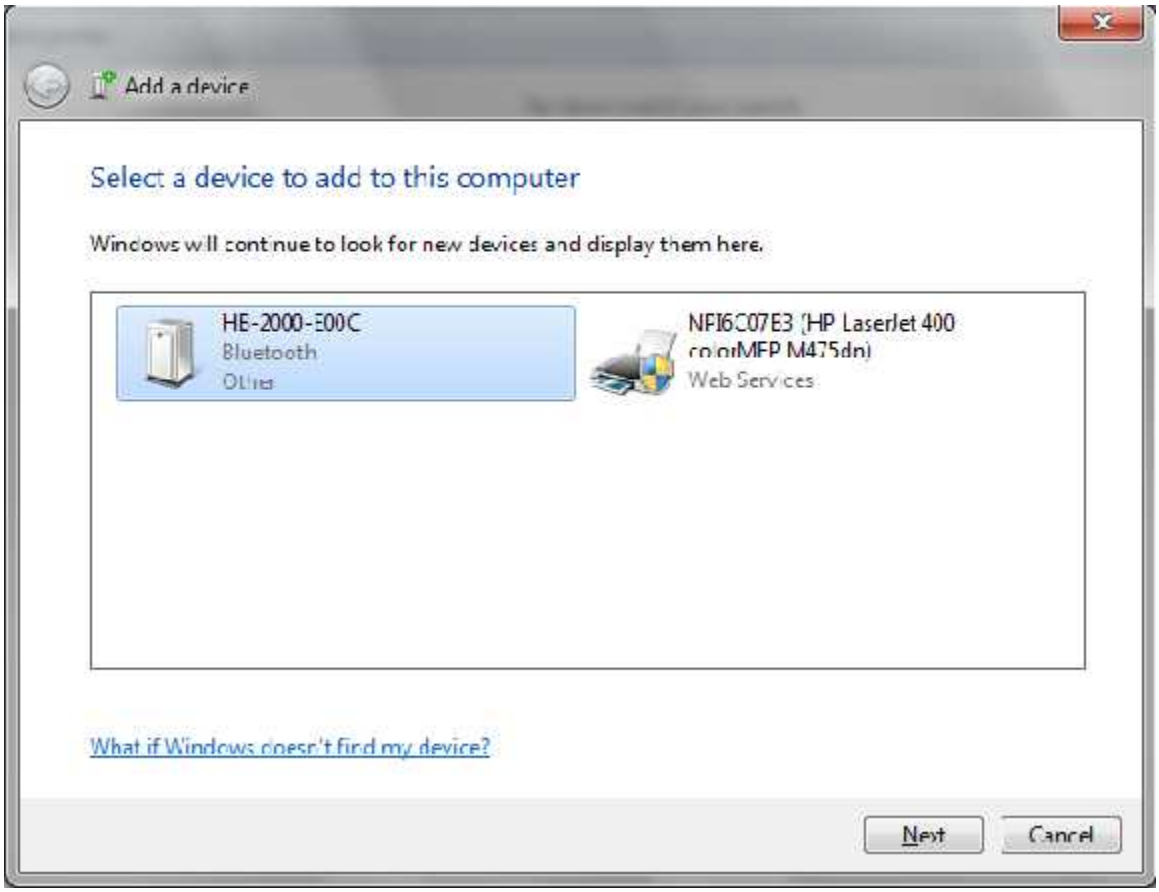


Figure 2 Bluetooth device candidates

6.3 Pairing

Select HB-2000[3] and click "Next" brings up a window shown in Figure 3 for selecting a pairing option. Click on "Enter the device's pairing code" brings up window shown in Figure 4. Type in an HB-2000 preset pairing code value of "0000".

[3] Be sure HB-2000 is not in sleep mode during the pairing process.

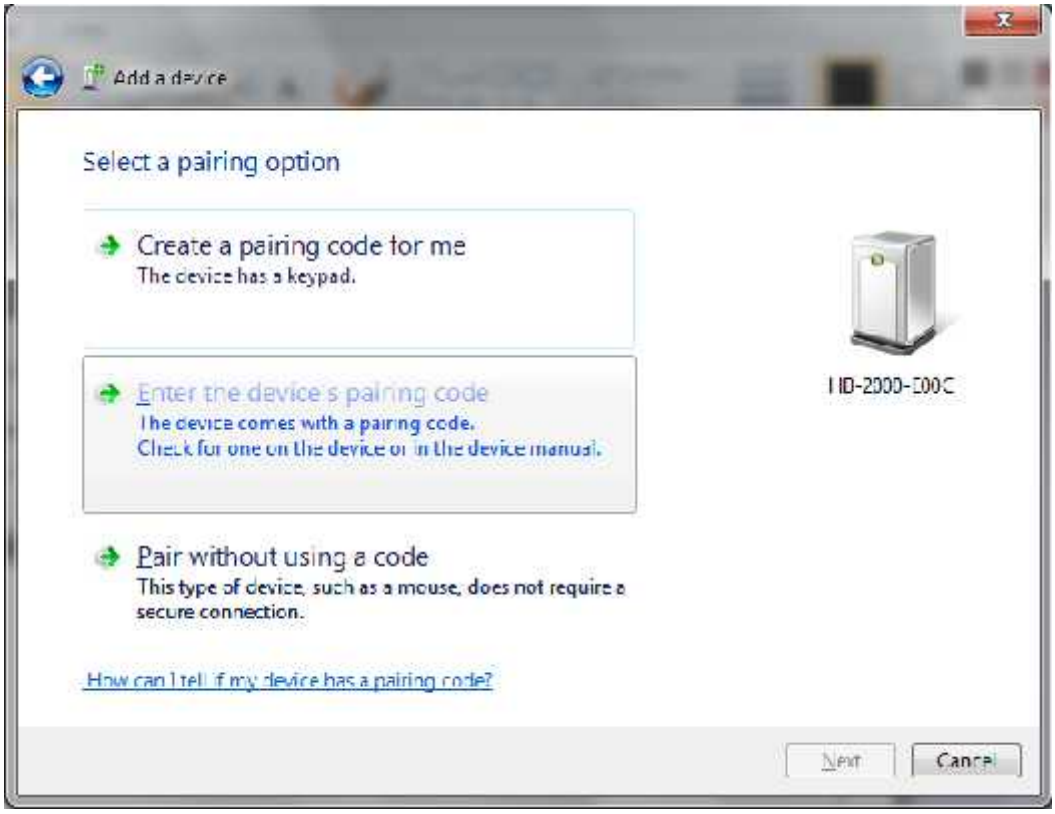


Figure 3 Pairing option selection window

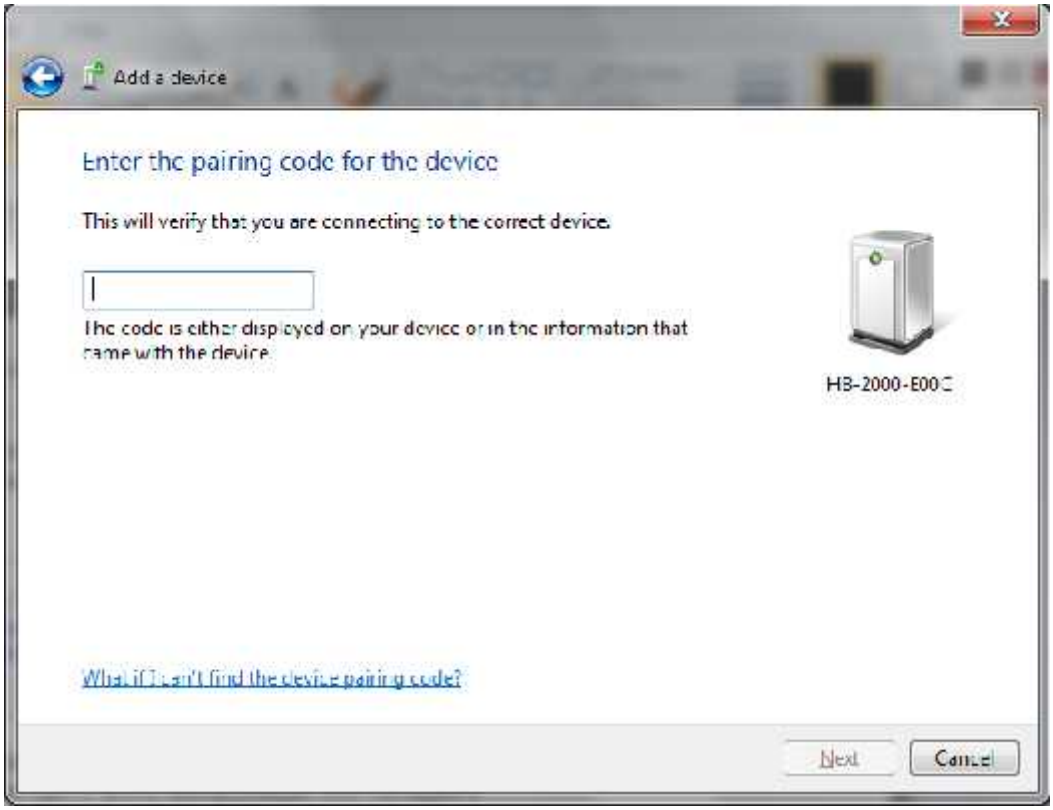


Figure 4 Pairing code entry

6.4 Bluetooth Setup Confirmation

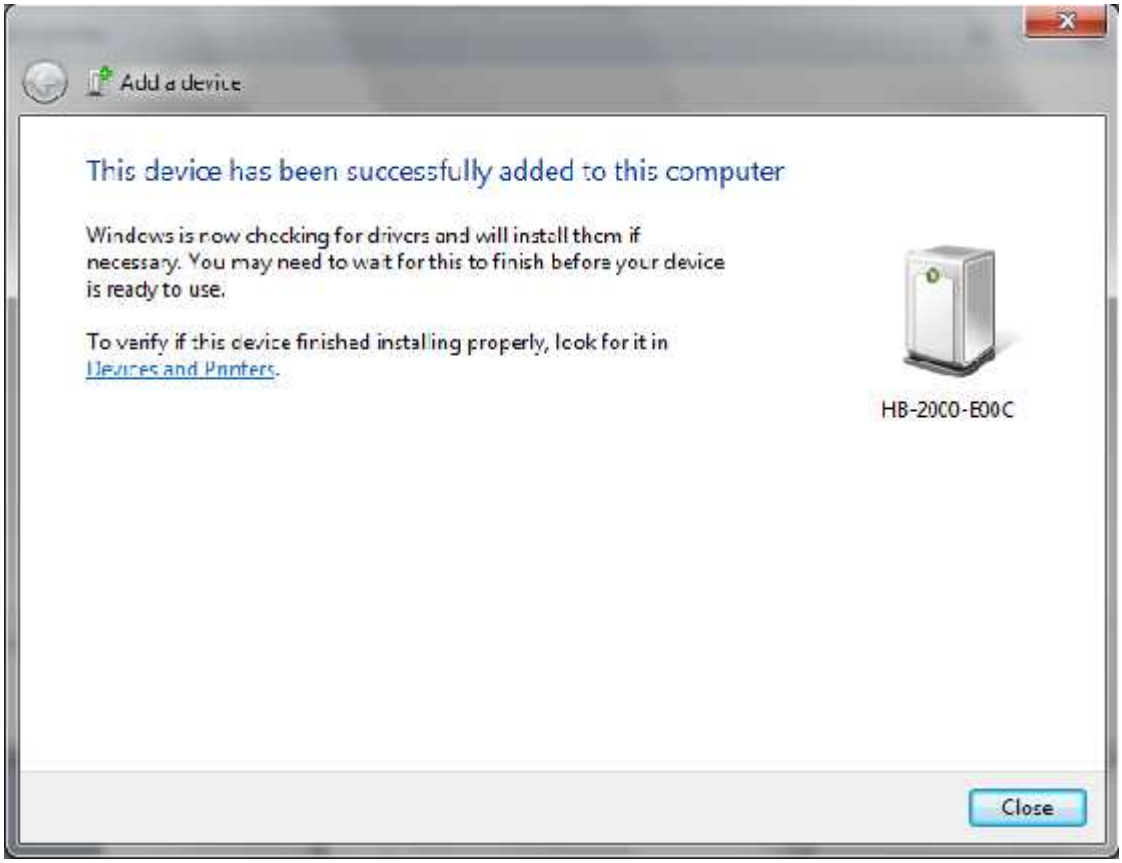


Figure 5 Pairing completed

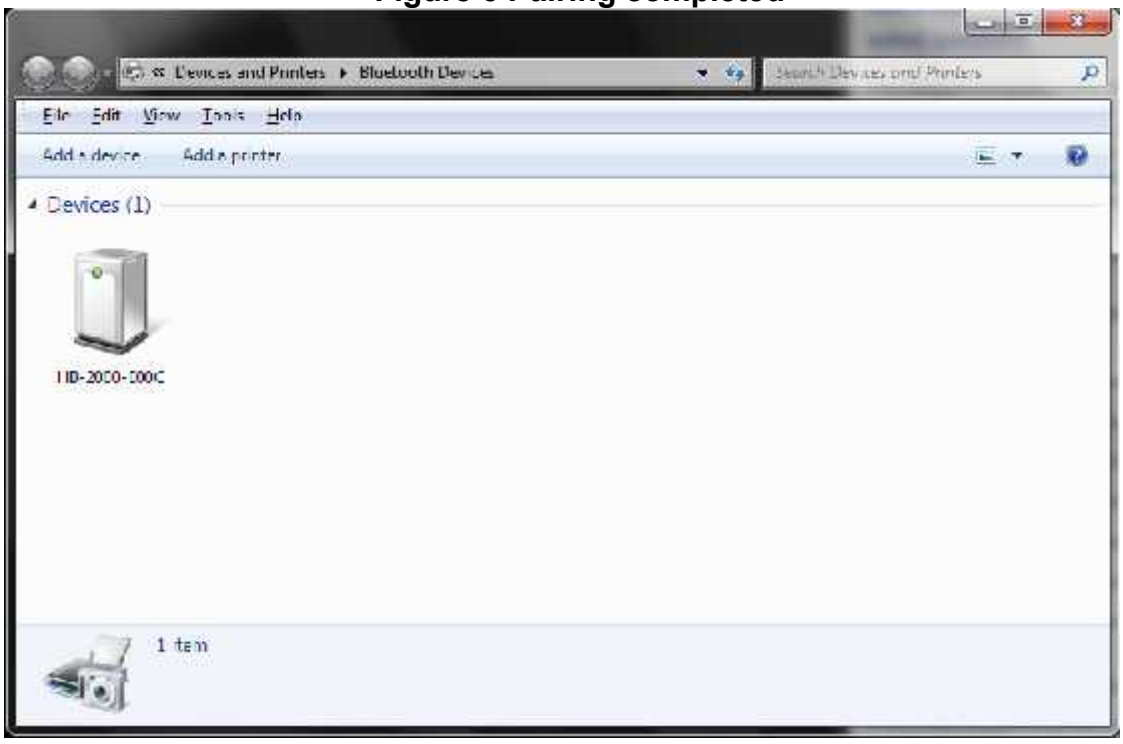


Figure 6 Resulting Bluetooth Devices window

Right (to select "Properties" from dropdown) or twice clicking the Bluetooth device HB-2000 for more information:

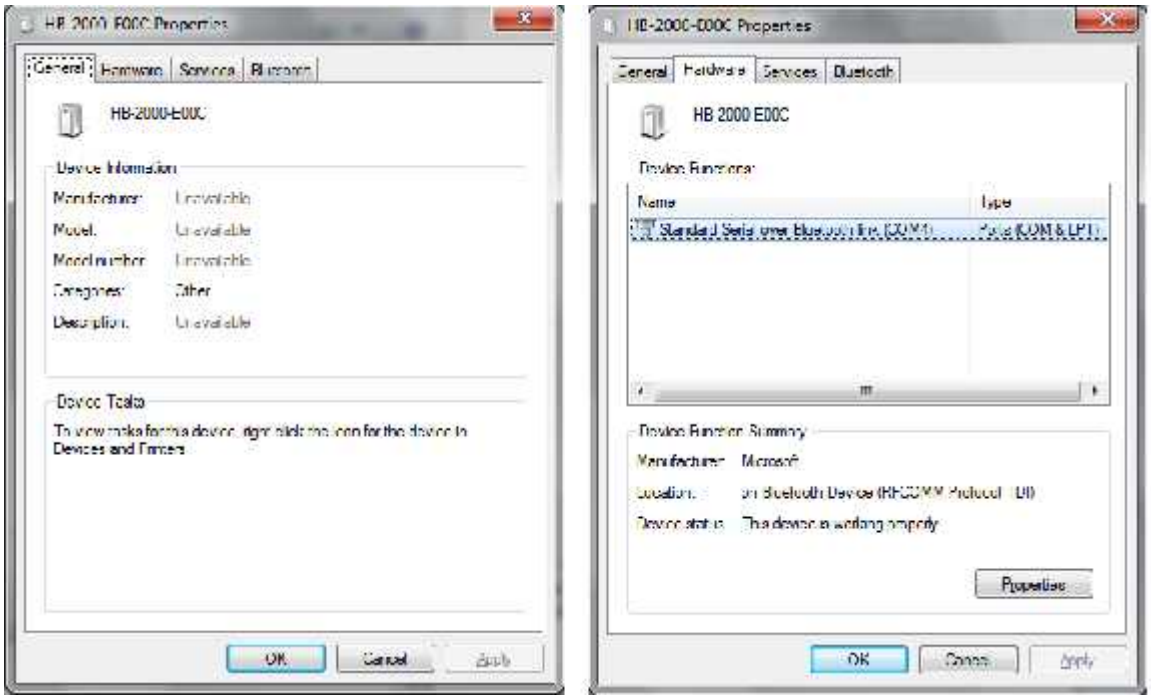


Figure 7 HB-2000 Properties Window

A serial communication between computer and HB-2000 can then be established through the displayed COM port at 57600 bps, the HB-2000 then basically functions like a fixed-location RFID reader.

7 RFID Reader and Demo SW

Demo SW applications for testing HB-2000's RFID Tag operations are available for download from http://www.awid.com.