

Windigo Products

Windigo Bluetooth(TM) Headset User manual (Mini Headset Module) PBTHSTA2C2M

Ver.1.2

Wednesday, May 07, 2003



FEDERAL COMMUNICATIONS COMMISSION

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.

NOTE

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. This equipment generates, uses and can radiated 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.

Shielded interface cables must be used in order to comply with emission limits.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

1. Introduction

Bluetooth profile K-6 gives an implementation guideline for Bluetooth headset application, which includes two functions: Bluetooth headset and Bluetooth audio gateway. Generally headset profile will be implemented in headset, and audio gateway will be implemented in cellular phone, PBX or other communication devices. Windigo systems has developed a fully Bluetooth V1.1 compliant headset module.

This manual will explain the basic headset operation instruction to our customers.

2. A glimpse at the headset

Figure 1 illustrates the reference headset and cellular phone.



Fig. 1.a PBTHSTA2C2M – Top View



Fig1.b PBTHSTA2C2M- Bottom View

Figure 1. Windigo Bluetooth Headset Reference Design

The headset module includes an amber LED, a blue LED, three buttons, and embedded audio connections and charging contact, these elements are illustrated in figure 2.

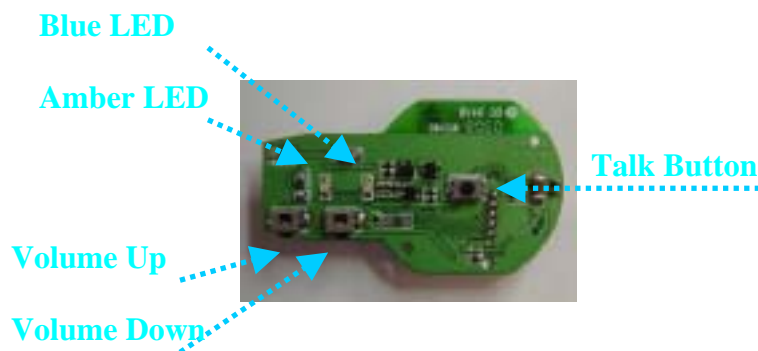


Figure 2. Key elements on Windigo Bluetooth Headset

Both amber LED and blue LED are used to indicate various operation status for the headset, such as pairing, connecting, talking...etc.

The three buttons are used to initialize various operations, such as activating the headset, turning off the headset, pairing, connecting, etc.

Audio connections are used to connect an external microphone and speaker. Windigo Bluetooth Headset must be paired with an audio gateway before it is fully functional. Please refer to the audio gateway user manual on how to initialize and operate the audio gateway and its various functions.

3. Getting start

Step 1:

Be sure the headset battery is fully charged before the first time use.
(Charging time is about 2 hours)

Step 2:

Enter into pairing (discoverable and connectable) mode

During headset transportation, headset is on idle (deep sleep) mode to conserve battery power. While in this idle mode, both blue and amber LEDs are off. To enable the pairing mode, press and hold the talk button until blue and amber LED flash alternatively, and a PAIR tone will be heard. This press and hold time is about 5 seconds. Please be noted that before blue and amber LED flash alternatively, either blue or amber LED will flash shortly depends on the battery status, and an ON tone will be heard. So in order to enter into pairing mode correctly, please still hold the talk button. After the PAIR tone is heard, and blue and amber LED flash alternatively, then release the button.

Note:

1. *Default headset name is BTHS03, and pin code is 0000*
2. *Pairing feature is used to establish the relationship between headset and audio gateway. Any given headset can only talk with the paired audio gateway after a successful pairing session.*
3. *Pairing mode can be cancelled by pressing and holding the talk button for about 3 seconds, until both amber LED and blue LED are off, and the OFF tone is heard. Then the headset is put into idle mode again.*
4. *Follow the instruction for specific audio gateway to perform the pairing. If the headset has been paired with audio gateway successfully, the headset will enter into standby (connectable only) mode. During this mode, blue LED will flash at 1-second interval if battery is full, and amber LED is off. Otherwise, if battery is low, then amber LED will flash at 1-second interval and blue LED will be off.*

Step 3:

Now the headset is ready to use. The headset will ring whenever there is an incoming call.

Step 4:

Answering the incoming call.

When the headset is ringing, user can pick up the call by pressing the talk button once shortly.

Note:

Make sure the cellular phone has been configured correctly so an incoming call is transferred to the headset via Bluetooth link.

Step 5:

Initiate connection to audio gateway

Normally the headset will stay in standby mode, if user wants to initiate a connection to the audio gateway, for example, voice dial with a suitable cellular phone, user can press the talk button once. While in this mode, the blue LED (or amber LED if battery low) will flash quickly for twice, then after 1 second, blue LED (or amber LED if battery low) will flash twice quickly again. In other words, the LED will flash quickly twice every 1 second. Once the connection between headset and audio gateway is established, the blue LED (or amber LED if battery low) will flash four times quickly after 3 second.

Step 6:

Adjusting the volume

Once the audio connection is established, User can adjust the volume by pressing volume button shortly to adjust the volume to louder or softer.

Step 7:

Mute/un-mute the microphone during talking.

User can mute/un-mute the microphone temporarily by depressing either volume button for about 3 seconds. If the microphone is muted, to un-mute the microphone, user can depress either volume button for 3 seconds.

4. Summary of the LED display

No display

Headset is in idle mode

If **blue** LED is working, means battery is fully

If **amber** LED is working, means battery runs low

LED flashes at 1-second interval

Headset is in standby (connectable) mode

LED flashes twice quickly at 1-second interval

Headset is trying to make an audio connection to phone. This most probably will happen when user wants to make a voice dial.

LED flashes four times quickly every 1-second interval

Headset is in talking (SCO connected) mode

5. Summary of button operation

Short press talk button (hold time less than 1 seconds)

- ❖ When headset is in standby mode, this will put headset into master mode
- ❖ When headset is in master mode, this will put headset into idle mode
- ❖ When headset is in talking mode, this will put headset into standby mode

Short press volume button (hold time less than 1 seconds)

- ❖ When headset is not in talking mode, this takes no effect.
- ❖ When headset is in talking mode, this will adjust headset volume

Press and hold talk buttons for 3 seconds

- ❖ When headset is in idle mode, this will put headset into standby mode, in other words, this will turn on headset
- ❖ When headset is not in idle mode, this will turn off headset

Press and hold volume button for 3 seconds

- ❖ When headset is not talking mode, this takes no effect on headset's status
- ❖ When headset is in talking module, this will toggle microphone mute and un-mute.

Press and hold talk buttons for 5 seconds

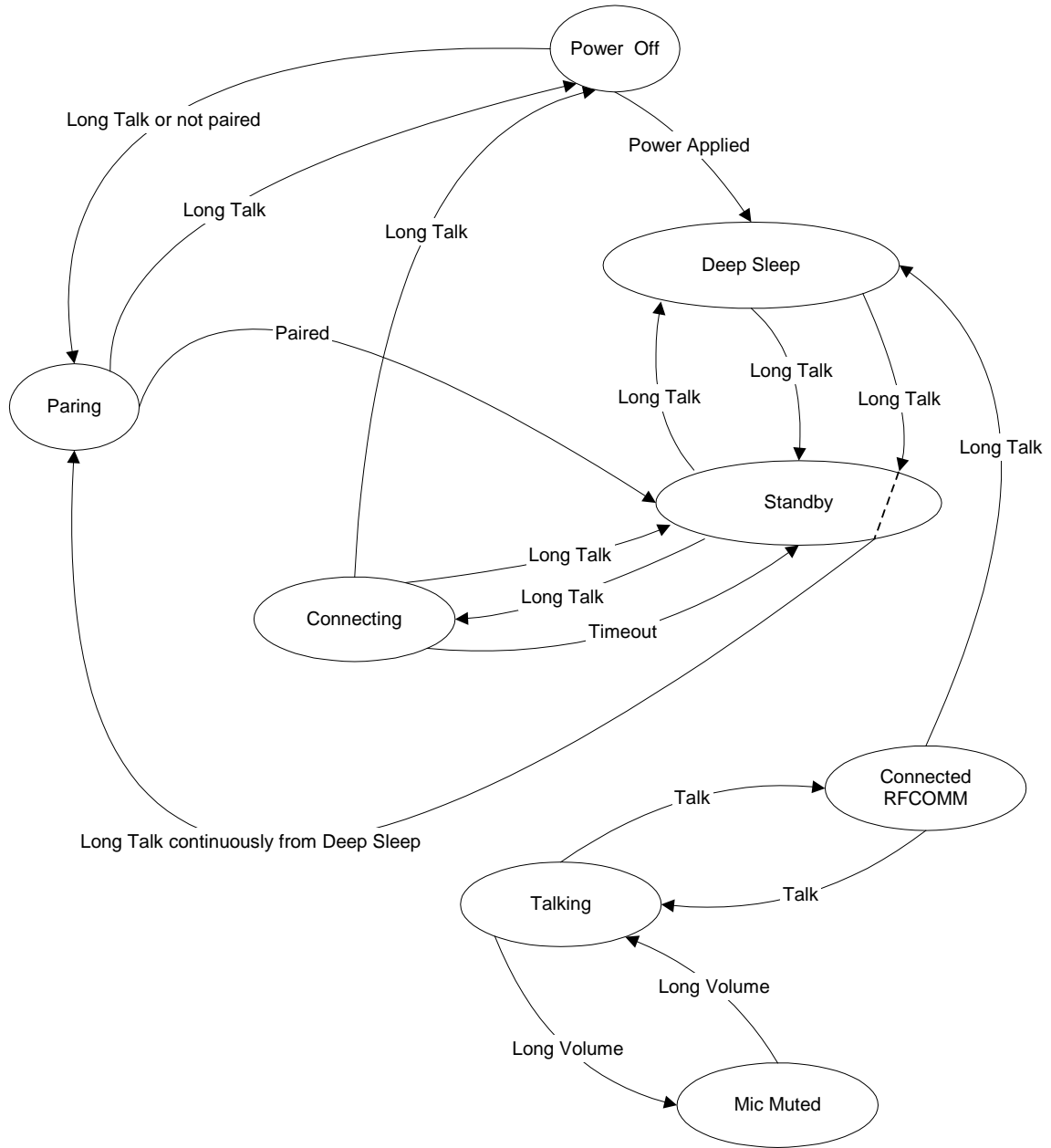
- ❖ When headset is in idle mode, this will put headset into pairing mode.
- ❖ When headset is not in idle mode, this takes no effect on headset status.

6. Summary of status transition

- ○ Both amber and blue LEDs are turned off
- ● Amber LED and blue LED flash alternatively
- ○ Blue LED is turned off, and amber LED flashes
- ● Blue LED flashes, and amber LED is turned off

Normally the headset will stay in standby mode unless user initializes shutdown operation.

User Interface State Diagrams for three buttons design



7. Key parameters settings

Here lists all the parameters preset to Windigo Headset module, and also please be noted that these parameters can be customized based on customers preference.

A. Buttons numbers:	3
B. Long press timer:	1 second
C. LED on time:	20 ms
D. LED quick flash interval:	200 ms
E. LED flash interval:	1 second
F. LED quick flash times for standby:	1
G. LED quick flash times for standby with ACL:	1
H. LED quick flash times for connecting:	2
I. LED quick flash times for talking:	4
J. LED quick flash times for ON/OFF:	5
K. LED flash interval for paring:	128 ms
L. Threshold for high voltage alert:	3.55 V
M. Threshold for low battery alert:	3.50 V
N. Threshold for turning off headset:	2.80 V
O. Battery monitor interval:	32 seconds
P. Connecting mode timeout:	10 seconds
Q. Default audio input gain:	29
R. Default audio output gain:	10
S. Default pin code:	0000
T. Default headset name:	BTHS03
U. Pairing mode timeout:	60 seconds