

Operation Description:

Windigo Bluetooth headset is battery power wireless communication device used to transfer both control command and voice between headset and audio gateway device, which is Bluetooth specification V1.1 compliant, and a single chip RF transceiver from Cambridge Silicon Radio is used. Single 16MHz crystal is used for both generating the timing for Bluetooth communication and internal micro-controller. PCB antenna is built in. This Bluetooth headset is major used with cellular phone for hand-free kit, but also can be used with Bluetooth capable computer, notebook, PDA and other computing and communication devices.

On the RF side, frequency-hopping technology is used, and hopping rate is at 1600 hops per second over 79 channels. Channel spacing is 1MHz, and operating at 2.400-2.485GHz. GFSK (Gaussian Frequency Shift Keying) modulation method is used. Raw data rate is up to 721kbps. Whole system includes the following functional blocks:

Audio Jack

Audio jack provides the analog interface for microphone and speaker, includes microphone input signal and speaker output signal.

Buttons

Buttons are used to perform pre-defined operation with interactive with user. Three buttons are defined, including talk button, volume up button and volume down button

DC Jack

DC jack is used to charge the battery inside headset, and the designed input voltage is 6V DC

Charging Protection

Charging protection is used to control the charging voltage and charging current to make sure the battery can be charged quickly and safely

LEDs

LEDs are used to indicate various internal statuses for headset, like pairing mode, talking mode, standby mode etc.

CODEC

CODEC is used to convert audio signal between digital and analog.

Bluetooth Module

Bluetooth Module performs all the Bluetooth functions from RF transmit and receive to communication protocol, also the man-machine interface operation, including buttons control and LED control

Antenna

Antenna is the unit to send the signal to air, and it receives the signal from air and feeds into Bluetooth Module

Typical usage scenario for Windigo Bluetooth Headset

A typical Windigo Bluetooth headset usage scenario is to use the headset with a Bluetooth enabled cellular phone (handset).

Before the headset can be used, a pairing procedure has to be carried out by pressing the button on headset to put the headset into pairing mode, and then initialize the pairing procedure on cellular phone. After the headset and cellular phone is paired, then the headset is ready to use for normal operation.

When there is an incoming call, cellular phone will make a data connection over Bluetooth with headset, and then send the ring command to headset. Once the headset receives the ring indication, it will alert user about this incoming call, user can press talk button to answer the call, then a voice connection is established between headset and cellular phone.