

# MIBO wireless speaker system - information and user guide



## INTRODUCTION

This guide will ensure you get the best from the wireless speaker system - and give understanding of the design, functionality and proper use of the hardware. Please read this guide fully before making use of the system.

## OVERVIEW OF THE WIRELESS SPEAKERS SYSTEM



### Details of each speaker:

- Speaker is a modified 'MiniRig' speaker (<http://minirigs.co.uk/>)
- Laser-cut enclosure containing custom electronics and lithium-ion battery power source
- Makes use of XBEE S1 wireless communication modules (<http://www.digi.com/xbee/>)
- Each unit numbered 1 - 10

- Playback and volume controlled by central 'master' control box
- Designed for use indoors, range <10m
- Hardware is open source - files and information available from (<http://stuartchilds.com/MIBO>)

## USING THE SYSTEM

### A QUICK-START GUIDE

The MIBOs have been designed for quick and easy use - follow these steps when installing / setting up the sound installation.

- Power on master control box
- Power on each 'node' speaker
- Plug the audio cable from each wooden enclosure into the bottom audio socket on the aluminium speaker cylinder
- Check the display on master control box - to see if each 'node' has registered as connected
- Press 'Play' on master control box to begin playback of sound files on 'nodes'
- Use the volume control on master control box to adjust volume of the 'node' speakers. Note that volume is a master, universal volume
- Press 'Stop' on master control box to stop playback of sound files. Speakers may take up to 1 second to respond to 'stop' signal
- Once you are finished with the system, ensure audio cables are unplugged from sockets in aluminium speaker casing (this powers off the amplifiers in the speakers) and that power switches on wooden enclosures are also switched off



## TROUBLESHOOTING

- **Node speaker is not playing audio back**
  - Check that unit is powered up. Unit may need charging.
  - Check that unit is in range of control box (is the display on master control box showing correct ID number as connected?)
  - Check that both the speaker/amplifier and enclosure are powered. Check top LED is illuminated as well as power light on wooden enclosure.
- **Master control box has become unresponsive**
  - Try to reset the box by either switching it off and on, or using the reset button.
  - Check the unit is powered. Unit may need charging.
- **Node(s) are not responding to play/stop commands from master control box**
  - Check that nodes are in range of control box.
  - Note that on occasion, nodes may take up to 1 second to respond to signal from master control box.

# USING THE SYSTEM - VISUAL GUIDE



## POWER ON THE CONTROL BOX

Power switch is located on one side of the wooden enclosure. Flick switch to 'ON' position and green LED will indicate power is on. Display will show system starting up, run an LCD check, then settle into idle mode ready for speakers to be connected.



## POWER ON NODE SPEAKER

Power switch is located on one side of the wooden enclosure. Flick switch to 'ON' position and purple LED will indicate power is on. The ID number of the node is located on another side of the enclosure - and will glow red when powered on.



## POWER ON SPEAKER AMPLIFIER

The amplifier in each node is powered separately to the system in the wooden enclosure. Power to the amplifier is turned on when the audio cable is plugged into the lower audio socket on the aluminium cylinder. The top LED will light up.



## CHECK CONNECTIVITY

When successfully connected to a node, the control box will show a black box underneath the corresponding ID number. If a node is powered on, but does not appear to be connected, try resetting the unit, or positioning closer to the control box.



## PLAYBACK

Pressing the green 'Play' button will begin playback of audio on each connected node. Control box will also display 'playing' during playback. Volume can be altered by adjusting the volume control on the master control box.



## STOPPING PLAYBACK

Pressing the pink 'Stop' button will stop playback of audio on each connected node. Note that it may take up to 1 second for each node to respond. Nodes will not respond if they are out of range of the control box when 'Stop' is pressed.



Unplug cable from this socket

Flick switch to off position

## POWERING OFF

When finished using the wireless system, power off each unit before packing away. The master control box power switch is located on the side of the wooden enclosure. Each node also has a power switch on one side of the wooden enclosure. Also remember to unplug the audio cable from the socket on the aluminium cylinder.

## SPEAKER BATTERY INFORMATION

Each node has 2 batteries. One battery is located within the aluminium cylinder and powers the amplifier that drives the speaker. The power LED on top of the speaker indicates the remaining charge / power in this battery. It can be recharged with the USB charging cable with the grey colour band - plugged into the power socket on the aluminium cylinder.

## NODE AND MASTER CONTROL BOX BATTERY INFORMATION

The master control box and wooden enclosure on each node speaker contain a single rechargeable battery to power the circuits inside. These batteries can be recharged using the USB charging cables with red colour bands - plugged into the power sockets on the wooden enclosures.

# BATTERY CHARGING GUIDELINES

## SPEAKER BATTERIES (USING SOCKET ON ALUMINIUM CYLINDER)



### INDICATOR LED

The minirig speaker enclosure features a colour changing LED on the top - indicating how much battery charge is left in the amplifier battery.

When this LED is red, there is no charge left in the battery and the unit will need

GREEN	CYAN	BLUE	PURPLE	RED
100%	60%	30%	<25%	0%

### CHARGING SOCKET

The charging socket for the speaker / amplifier battery is located between the two audio sockets on the aluminium cylinder.

### BATTERY CHARGE INDICATOR

### CHARGING

Plug in a USB charging cable with **grey** colour band.

It will take 6-8 hours to fully charge the battery. During this time the indicator LED on top of the speaker will flash, and change colour according to charge. Once the LED stops flashing, the unit is fully charged. It is recommended that the unit is not left unattended whilst charging - and not left for long periods without charging.

## IMPORTANT

The battery inside the speaker and amplifier unit is a lithium polymer type battery. These batteries have long life and are of efficient design - but if mis-handled can fail and/or cause fire. Do not pierce or remove the batteries, short circuit or leave charging unattended for any extended period of time. Each battery has its own protection circuitry to prevent any failure - and utmost care has been taken to ensure safety of this product. Refer to the included safety leaflet for further information and handling guidelines.

## OTHER BATTERIES (USING SOCKET ON WOODEN ENCLOSURE)



### INDICATOR LEDS

Each wooden enclosure has two charging LEDs - one to indicate that the battery is charging and one to indicate that the battery is charged. For each node, the 'charging' LED is yellow, and 'charged' LED is green. For the master control box, each of these LEDs is purple.

### CHARGING SOCKET

Charging sockets for master control box and nodes are located on one side of the wooden enclosures.

### CHARGING

Plug in a USB charging cable with **red** colour band.

Once batteries are fully charged and the green indicator LED is illuminated, remove the charging cable. It is recommended that the units are not left charging unattended - and not left for long periods without charging.

## IMPORTANT

The battery inside the wooden enclosure unit is a lithium ion type battery. These batteries have long life and are of efficient design - but if mis-handled can fail and/or cause fire. Do not pierce or remove the batteries, short circuit or leave charging unattended for any extended period of time. Each battery has its own protection circuitry to prevent any failure - and utmost care has been taken to ensure safety of this product. Refer to the included safety leaflet for further information and handling guidelines.