# LT750 EXPERT

## Digital Wireless Intercom System
## Operating Instructions

**(V2.4 171101)**

**LaON Technology Co., Ltd.**

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# IMPORTANT SAFETY INFORMATIONS

**1.** For LT750 systems, to reduce the risk of electric shock, explosion or fire;

- Use only the supplied AC power adapter
- Do not disassemble the product
- Avoid contact with liquids besides the permitted certain equipments
- Use only the proper type of battery and rechargeable battery supplied by the manufacturer

**2.** Battery Safety and Cautions

- Do not charge with any other AC power adapter or charger.
- Do not burn, disassemble, bend or short-circuit the battery.
- Dispose of used up battery promptly and safely according to local regulations.
- Keep battery away from children.
- Do not short the metal contacts with electrically conducting material such as bracelets, keys, and etc.
- Recommended battery storage temperature is -20 °C to 30°C for less than 1 year, -20°C to 40°C for less than 90 days, -20 °C to 50°C for Less than 30 days.
- Recommended Battery charging temperature is 0°C to 40°C
- Do not burn or expose batteries to excessive heat such as sunshine or other heat sources
- When using alkaline or other maker's rechargeable batteries other than LAON provided rechargeable batteries, LTWI-BAT50 and LTWI-BAT150, use the same batteries as packaged by the makers for the same specifications, related current and voltage. In case of using non-LAON provided rechargeable batteries, use the maker designated battery charger. Two or Four batteries to be used together by putting into the Battery Sled of LAON products should be managed to have the same residual time, life and recharged with same cycles. Using batteries together with different specifications and natures may cause damages on inner parts of the applicable LAON product and affect battery operating time.

**3.** Antenna Safety and Cautions

- Use only manufacturer supplied antennas.
- Antenna shall be mounted in such a manner to minimize the potential for human contact during normal operation. The antenna should not be contacted during operation. The minimum separation distance of 7.9 inches (20 cm) from the antenna to the body of user required.

LT750 system operates in the 5GHz UNII band frequency range. LT750 system is approved for license free use in most countries. There may be restrictions on the use of some bands or RF spectrum operations in some countries. Therefore, it is your responsibility to confirm with the designated authorizer in your local area whether the equipments of the LT750 system approved to use in your country or not.

## NOTICE

Illustrations, figures and images of this publication are only for explaining equipment's operations and functions and may roughly reflect the actual equipment.

Contact the designated distributors or retailers to avoid erroneous interpretations or language translations that may cause equipment malfunctioning.

The information herein, including but not limited to, illustrations, figures and images subject to change without prior notice and shall not be interpreted as an expressed or implied commitment on LAON Technology's part.

With due respect, LAON Technology, the manufacturer of the equipment does not provide any expressed or implied warranty to anything included in this operating instruction and shall have no legal responsibility for any implied warranties of suitableness for a specific application or for any special, indirect, or consequential damages.

LAON Technology may update this publication at its own discretion.

# SECTION 1: INTRODUCTION

LaON Technology('LaON')'s patent-technology base digital wireless intercom system offers the best audio quality with an excellent clarity by using **5GHz UNII band**, **triple diversity** - frequency, time and antenna, and **frequency interference avoidance** technologies. It guarantees the system stability even in the large congested site environments where various A/V and wireless equipments are co-located. Super-scalable IP based repeater, Remote Station enables the system transfer the power and audio data. With the **multiple Remote Stations deployment**, the wireless coverage can be amazingly extended. .

## LT750 EXPERT SYSTEM MAIN FEATURES

- **LICENSE-FREE 5GHz UNII BAND**

  5GHz UNII Band, the worldwide license-free frequency band provides approximately up to 29 RF channels depending on the regions as opposed three (3) RF channels on 2.4GHz ISM band. Therefore, users are able to enjoy pleasant wireless communications with even less traffics or interferences. Due to high frequency band, the system is also hardly affected by high-power digital equipments such as amplifiers and speakers.

- **SUPER-SCALABLE IP BASED REPEATER SOLUTION, REMOTE STATION**

  Remote Station('RBS') supports to dramatically expand the wireless communication coverage. Multiple studio spaces or multi-floors can be easily consolidated by adding Remote Station at each space using the standard LAN network configuration. Up to ten (10) Remote Station can be connected per Base Station, BS750 and it provides PoE (Power of Ethernet) function for the convenient power supply. Automatic roaming is available between the Base Station and Remote Stations.

- **INDUSTRY-TOP LEVEL AUDIO QUALITY**

  23ms low latency level and 7.2Khz audio frequency guarantee a high quality audio performance. LT750 system is perfectly tuned professional wireless intercom system that fits to use at various loud and congested site environments.

- **FIVE(5) COMMUNICATION GROUP CHANNEL**

  Single or multiple communication group channels can be assigned to the Base Station, Belt Pack, 4-Wire and AUX devices each and those group channels can be used in single, multiple or all together at the same time. With this flexible grouping capability, one (1) Base Station covers IFB communication as well as IC and ISO communications without an additional IFB system which is 'more with less' cost efficient solution.

- **ELEVEN(11) FULL-DUPLEX LISTEN & TALK COMMUNICATION CHANNEL (1 BS + 10 BPs)**

  Eleven (11) full-duplex audio channels are offered with one (1) Base Station. By making the full use of this with multiple group channels, a number of independent teams are practically able to have IFB and wireless communications in one (1) system respectively.

- **UP TO ONE HUNDRED AND TWENTY EIGHT(128) BELT PACK CONNECTION**

  One hundred and twenty eight (128) Belt Packs can be registered into a Base Station.

- **BELTPACK IN MASTER MODE**

  A Belt Pack can play a role as a master where there is no Base Station or the Base Station is located far from the actual Belt Pack operation area.

- **4-WIRE AND AUXILIARY I/O INTERFACES**

  4-Wire and Auxiliary Input / Output ports are provided to secure seamless connections with wired intercom systems, external audio devices and etc.

- **COMPACT DESIGN**

  Comfortable headset and compact Belt Pack with internal antenna support high wearability with mobility even at the tough broadcasting or event sites.

- **VARIOUS OPTIONS ON BATTERY**

  Either LaON provided rechargeable battery or AA type Alkaline battery with LaON provided designated battery sled can be used for supplying power to the Belt Pack. Also, non-LaON provided rechargeable battery can be used with the battery sled.

- **MONITORING FUNCTIONS**

LT750 system provides various monitoring functions for Base Station, Remote Station and Belt Pack such as the link status, RSSI(Received Signal Strength Indication), battery status and microphone gain level and etc.

- **MONITORING OF AUDIO BREAK-UP**

  When a Belt Pack is out of coverage, the Belt Pack user is easily able to monitor the audio break-up with his/her side tone unlike other traditional wireless intercom systems.

- **TOP SECURITY WITH AES 256BIT LEVEL 3 ENCRYPTION**

  AES 256bit Level 3, the top level encryption technology is applied to secure confidential communications.

- **EFFICIENT 7 PORT CHARGER**

  There are five (5) bays for charging the Belt Pack batteries which are equipped in the Belt Packs and two (2) bays for charging the Belt Pack batteries which are separated from the Belt Packs. Two (2) of them are for dual use for charging Remote Station or Mobile Station's batteries.

- **LaON IN-HOUSE TECHNOLOGIES AND SOLUTIONS**

  LaON has developed from the wireless SoC built in the systems to the wireless intercom systems in-company by applying its own patent base technologies. Base on the know-how and comprehensive experiences in wireless technology, LaON offers timely and prompt service with full flexibilities for customer satisfactions with top priority.

## SYSTEMS AT A GLANCE

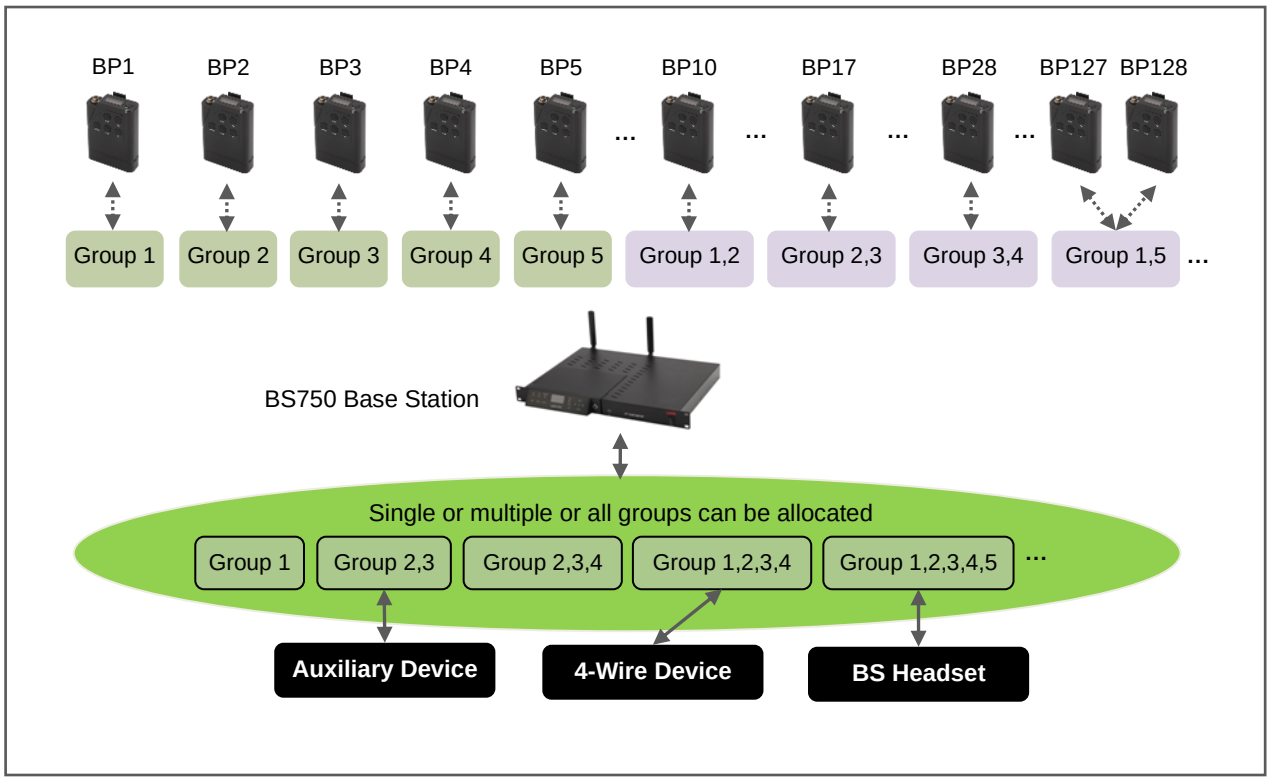
(BS:Base Station / MS:Mobile Station / BP:Belt Pack / RBS:Remote Station)

| | LT SERIES | LT750 | LT550 | LT250 | LT150 |
|---|---|---|---|---|---|
| SYSTEM | Frequency band | 5GHz UNII | 5GHz UNII | 5GHz UNII | 5GHz UNII |
| | Station type | Fixed | Fixed | Fixed | Fixed or Mobile |
| | Battery availability for Station | X | X | X | ○ |
| | Number of full-duplex channel | 11(1BS + 10BP) | 11(1BS + 10BP) | 9(1BS + 8BP) | 5(1MS + 4BP) |
| | Number of group channel | 5 | 5 | 3 | 2 |
| | 4-Wire port | ○(1) | ○(1) | X | X |
| | Auxiliary I/O port | ○(1) | ○(1) | ○(1) | ○(1) |
| | Number of RBS connection | 10 | 5 | 1 | X |
| | Audio Frequency | 200 Hz~7.2kHz | 200 Hz~3.5kHz | 200 Hz~3.5kHz | 200Hz~7.2KHz |
| | BP connection and compatibility | BP750, MS150 | BP550 | BP250, BP550 | BP150, BP750 |
| | Number of BP connection | 128 | 128 | 128 | 128 |
| | Link, RSSI, Battery status Monitoring | ○ (BS, BP) | ○ (BS, BP) | ○(BS, BP) | ○(BP) |
| | RF monitoring | ○ | ○ (USB S/W) | X | ○ |
| | BP # for group channel allocation | 128 | 32 | 32 | 128 |
| BELT PACK | Two groups communication (IC/ISO) | ○ | ○ | ○ | ○ |
| | Side tone level adjustment | ○ | X | X | ○ |
| | Key lock | ○ | X | X | ○ |
| | Hands off sensitivity level selection | ○ | ○ | ○ | ○ |
| | Low cut adjustment | ○(-3dB/-6dB) | X | X | ○(-3dB/-6dB) |
| | Maser BP function | ○ | X | X | ○ |

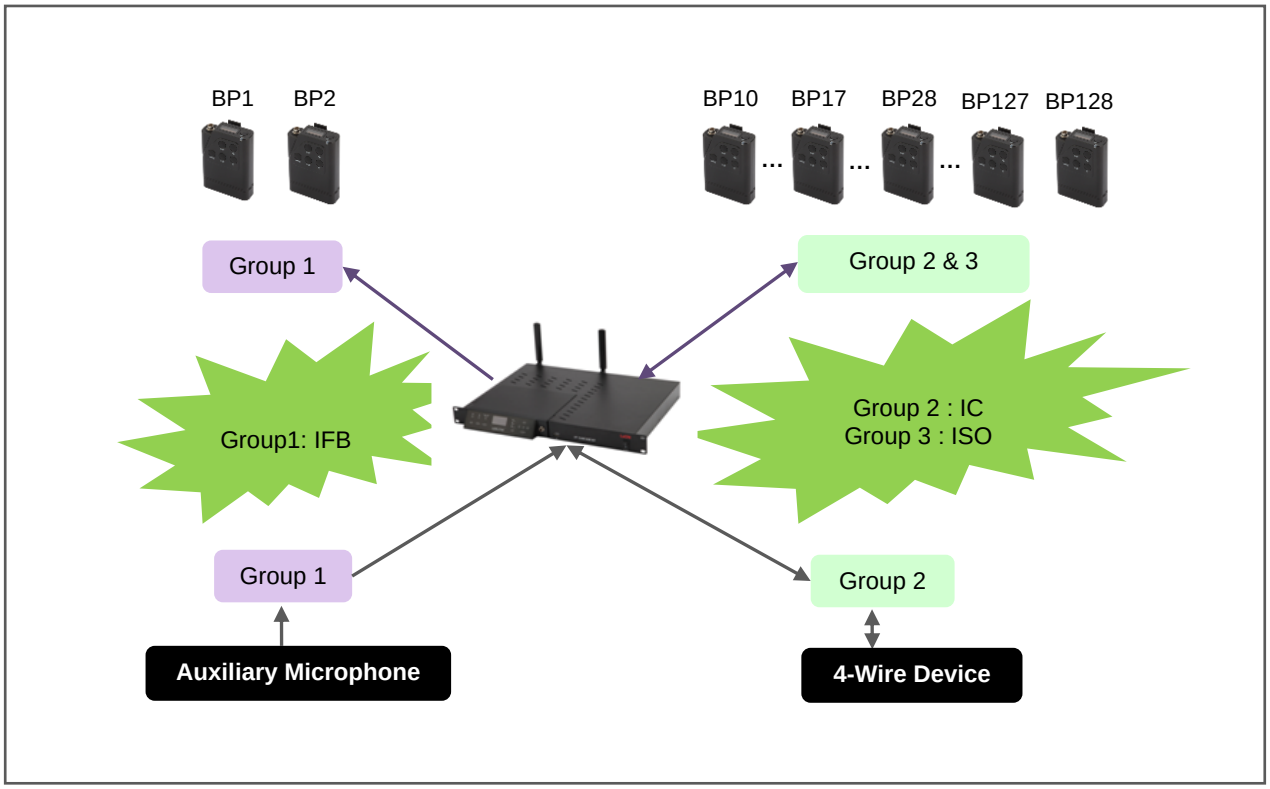
# SYSTEM USAGE EXAMPLE

## COMMUNICATION GROUP ALLOCATION

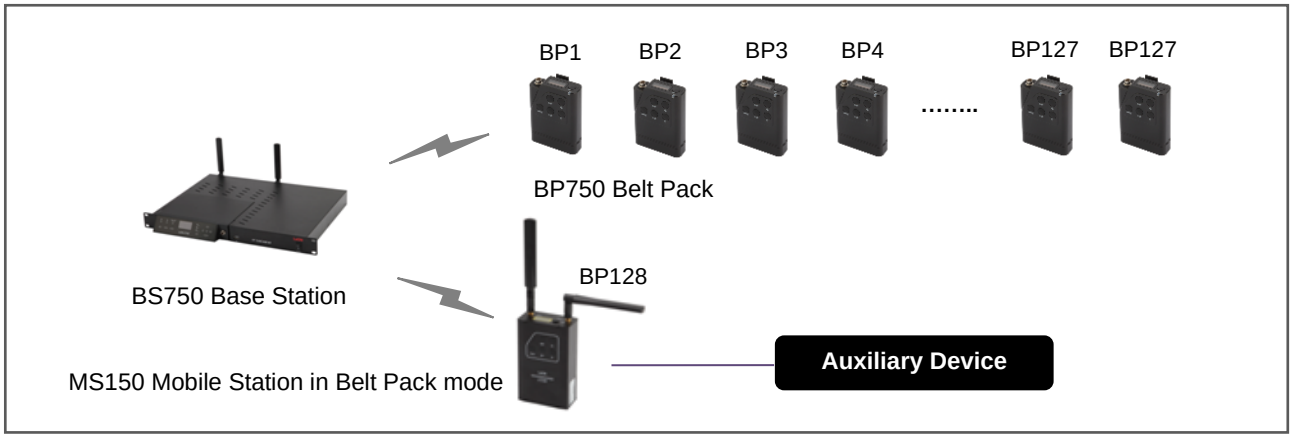
- Single or multiple communication group channels up to five (5) can be allocated flexibly to the each device and the group or groups can be selected for RX/TX.
- Since the channels can be allocated to the 4-Wire and AUX Input/Output devices, the one (1) system supports various communication ways such as IFB as well as IC and ISO.
- On Belt Pack, communication in each group or simultaneous communications for two groups are available.



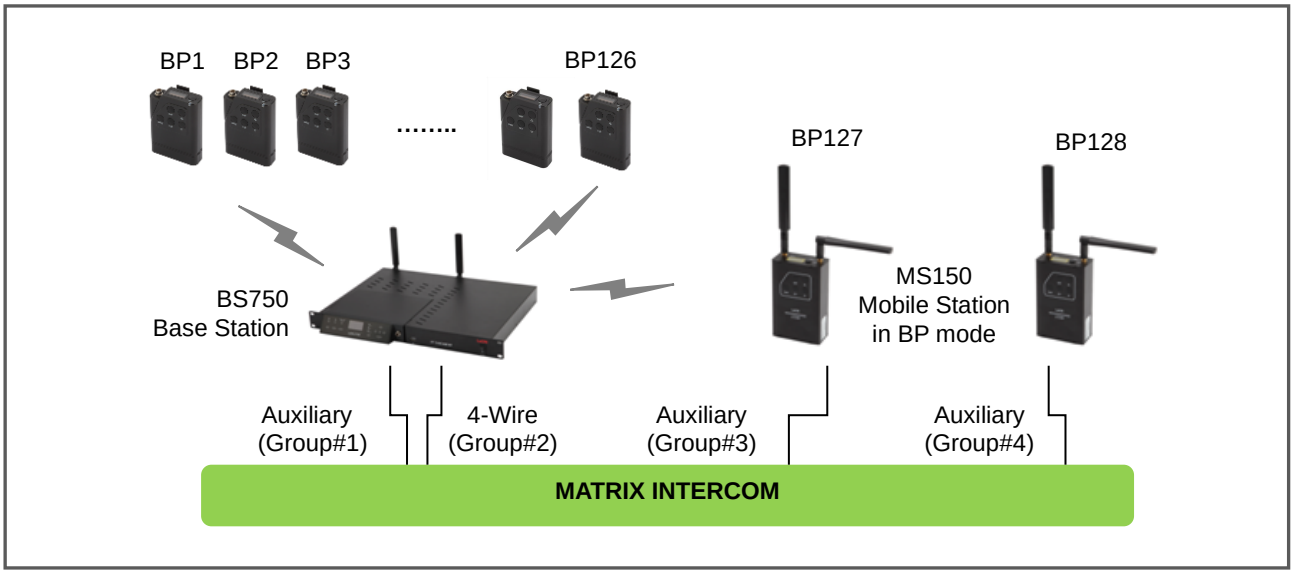

**IFB and IC/ISO communications in ONE (1) system**



## SYSTEM USAGE OF THE STAND-ALONE OPERATION



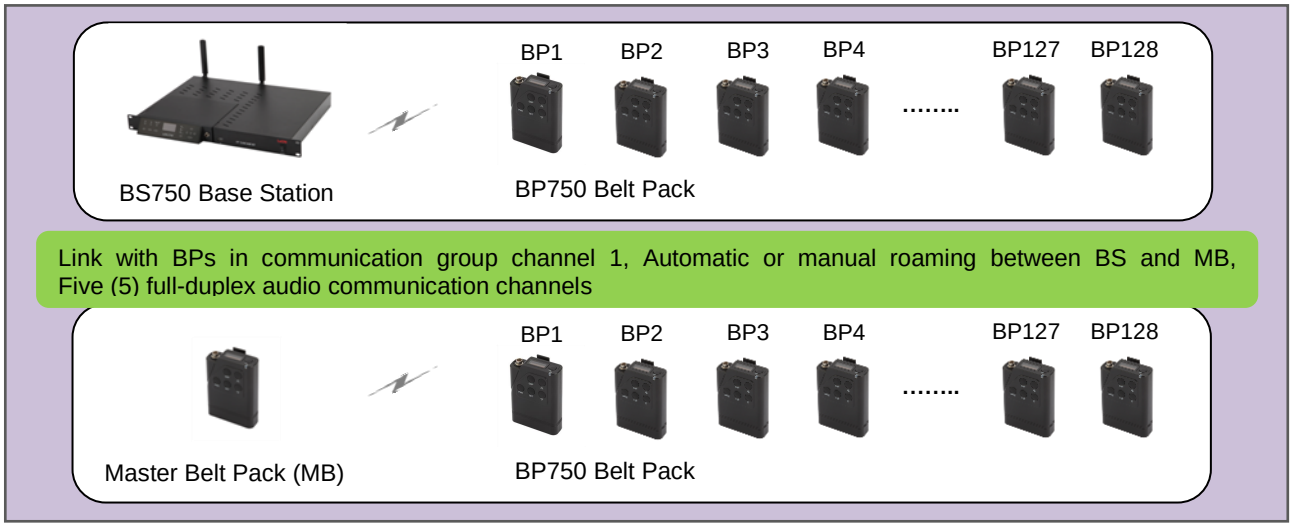

## SYSTEM USAGE WITH WIRED INTERCOM / MATRIX SYSTEM




## MASTER BELT PACK (MB) MODE

- A Belt Pack can be set in master mode to replace the Base Station.
- With master Belt Pack mode, the system provides a single communication group channel with five (5) full-duplex audio communication channels (1 MB + 4 BPs).
- Automatic roaming is available between the Base Station and Master Belt Pack if they are located in independent separate area respectively. All Belt Packs to link to the Master Belt Pack should mandatorily set the group channel to one (1).

**Stand-alone operation in each independent area**



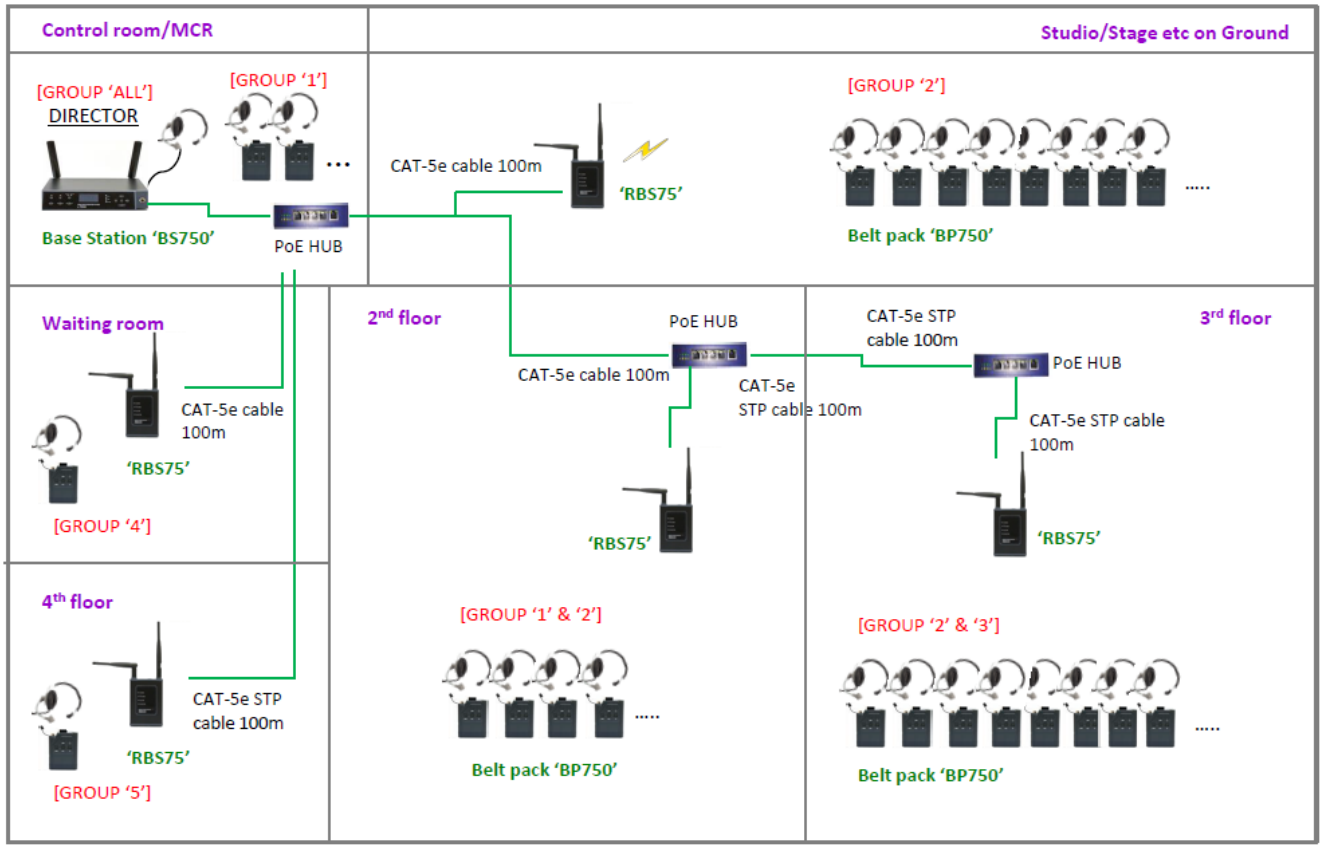

**NOTE**: Do not use Mobile Station and Master Belt Pack(MB) in a same coverage. Otherwise, the Belt Packs will be

automatically linked to either one with stronger signal which will cause confusion and wrong operation on the wireless communication.

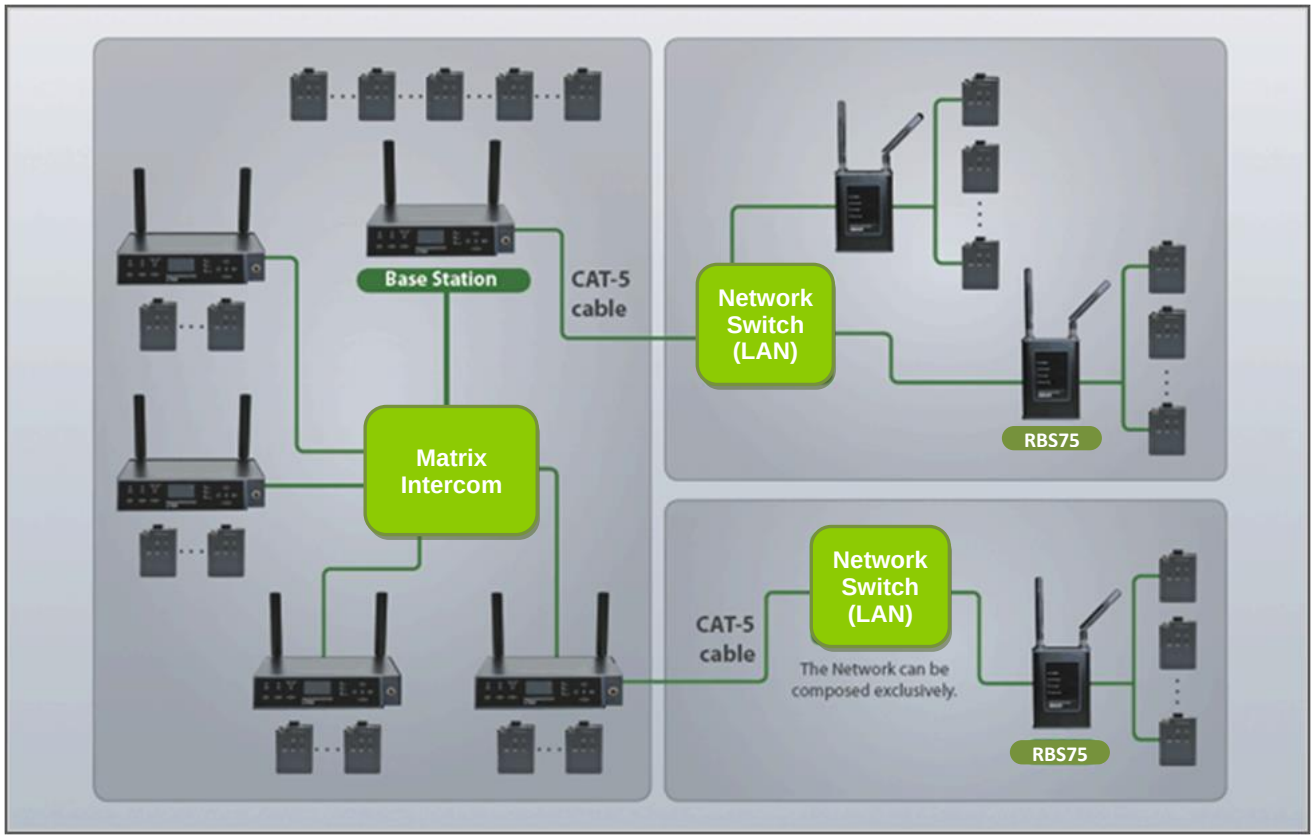
## SYSTEM USAGE WITH THE REMOTE STATION

- Up to ten (10) Remote Station can be connected per Base Station, BS750. With the industry standard LAN network configuration, multiple studio spaces or multi-floor sites can be easily consolidated.
- This super-scalable Remote Station also provides extra-efficient functions such as PoE connection that does not require a designated local power or battery, and automatic roaming between the Base Station and Remote Stations.
- The system allows various types of network connection such as optical fiber cable, PoE and daisy-chain connection.
- Redundancy backup system solution can be offered upon project requirement.

### Usage with PoE switch



## SYSTEM USAGE WITH THE REMOTE STATION AND THE INTERCOM ROUTER



# SECTION 2: PRODUCT OVERVIEW

## LT750 SYSTEM EQUIPMENTS

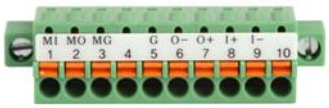
The followings are basic LT750 Wireless Intercom System equipments.

## BS750 BASE STATION EQUIPMENTS


BS750 Base Station

Base Station Antenna

AC power adapter




10 pin spring clamp connector

1RU Rack mount kit, BRK550 (Optional)

1RU Cascade kit, BSCCK100 (Optional)

- **1RU RACK MOUNT KIT:** This wing bracket accessory helps to install the Base Station on the 1RU rack. There are halls on both side brackets to fix the antennas facing front.
- **1RU CASCADE KIT:** The Base Station, BS750 can be docked to the 19” cascade kit. Locking power connector, 3 Pin XLR connector for 4-Wire ports and AUX I/O ports, ‘Push-Pull Locking’ type EtherCON connectors for three(3) PoE Ports are provided on the rear panel of the cascade kit.

# BP750 BELT PACK EQUIPMENTS


BP750 Belt Pack

Battery sled

BAT50 Rechargeable Battery Pack (Optional)


BPPCH100 Belt Pack Pouch (Optional)

# BATTERY CHARGER AND HEDSET EQUIPMENTS

## BATCHG125 BATTERY CHARGER EQUIPMENTS

BATCHG125 Battery Charger

AC Power Supply

## HEADSETS

LSH-S125 (Electret)

LMH-125 (Electret)
LMH-125D (Dynamic)

LSH-S12 (Dynamic)

LMH-12 (Dynamic)

LMH-10 (Dynamic)

PTE-850 (Electret)

## RBS75 REMOTE STATION EQUIPMENTS


RBS75
Remote Station

RBS antennas

AC Power Supply

RHD1000
Remote Station holder
(Optional)

- **Remote Station Holder:** Insert a Remote Station and fix it with a screw on the holder. Connect the LAN cable by using the 'Push-Pull Locking' type EtherCON connector on the bottom of the holder. Install them on the wall or camera tripod or microphone/light stand with interfacing screws.

# EQUIPMENTS OVERVIEW

## BS750 BASE STATION OVERVIEW

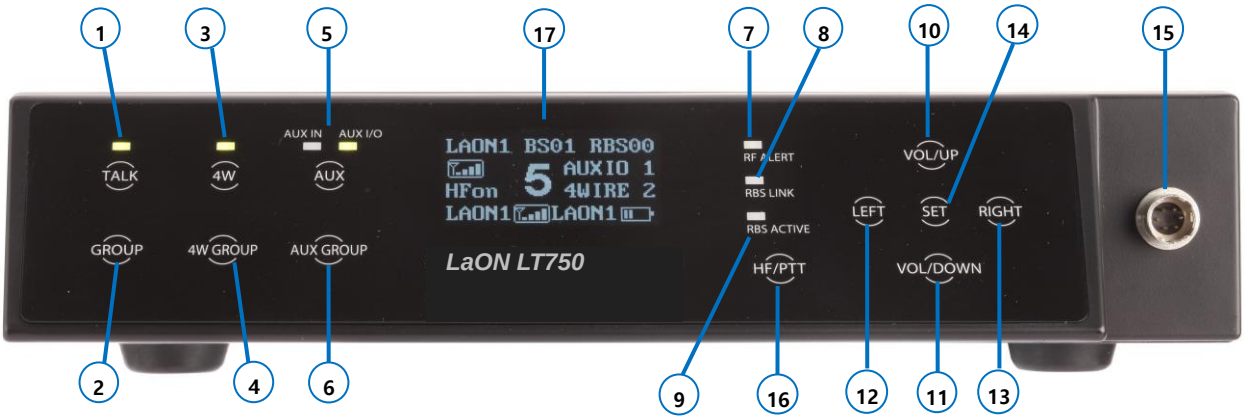



Figure 2-1. Front panel of the Base Station

1. Headset TALK button with indicator light
2. Headset communication group button
3. 4-Wire button with indicator light
4. 4-Wire communication group button
5. AUX IN, AUX IN/OUT button with indicator light
6. AUX IN, AUX IN/OUT communication group button
7. RF ALERT indicator light
8. Remote Station LINK Indicator light
9. Remote Station ACTIVE indicator light
10. Headset speaker volume control (UP)/Menu selection button
11. Headset speaker volume control (DOWN)/Menu Selection button
12. Menu selection button (LEFT)
13. Menu selection button (RIGHT)
14. Menu SET button
15. Headset cable connector (Receptacle)
16. Hands Free/PTT mode selection button
17. OLED Display

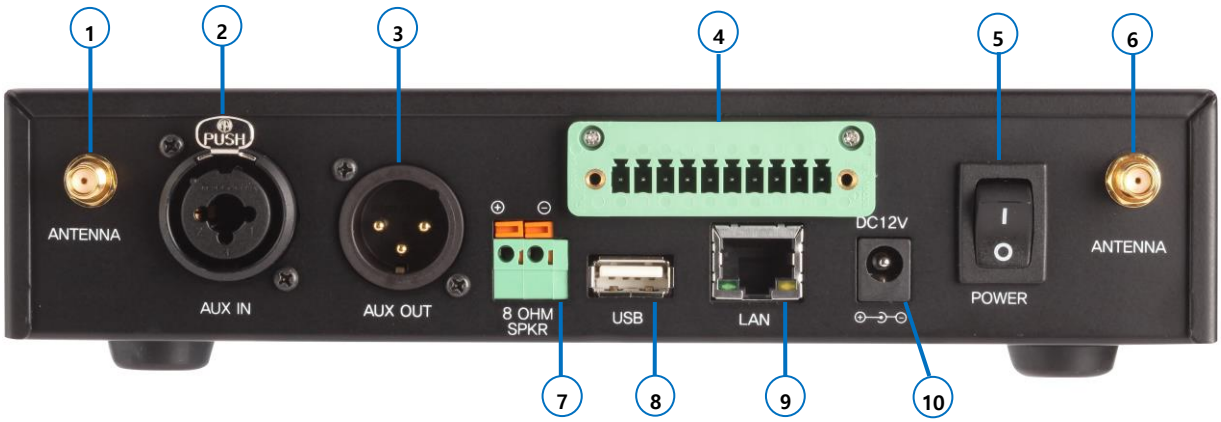



Figure 2-2. Rear panel of the Base Station

1. Antenna connector
2. AUX IN connector
3. AUX OUT connector
4. 4-Wire connector
5. Power switch
6. Antenna connector
7. 8-OHM speaker 2-pin spring clamp connector
8. USB connector
9. LAN RJ-45 connector
10. POWER connector

# BP750 BELT PACK OVERVIEW

BP750 Belt Pack is moisture resistant which is excellent in using under humid environment.

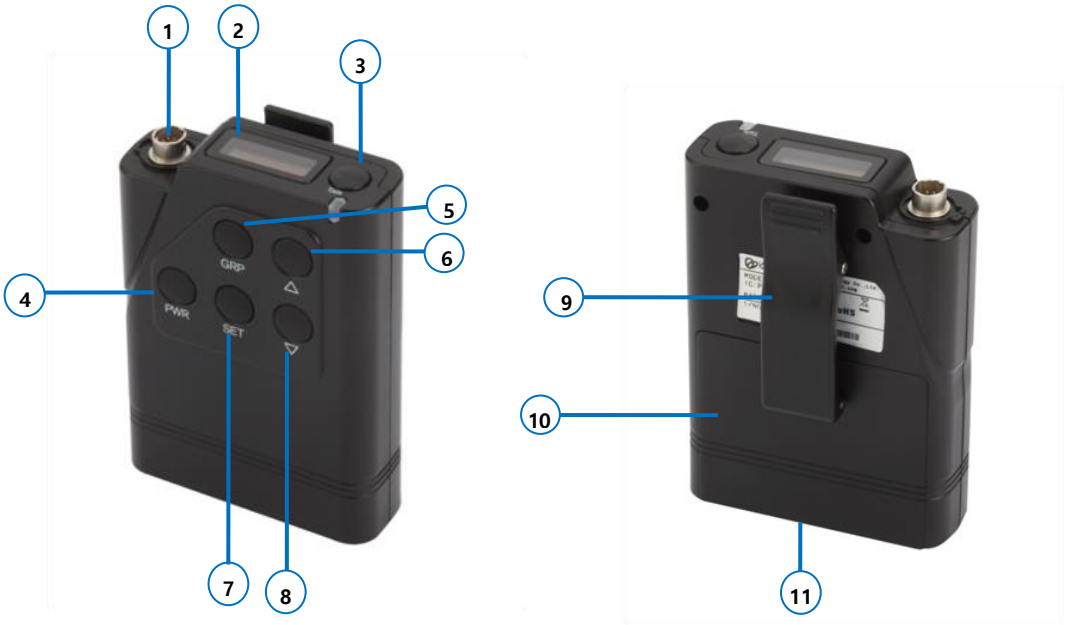
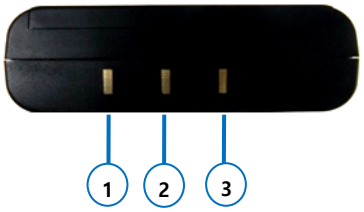



Figure 2-3. Panels of the Belt Pack

1. Headset cable connector (Receptacle)
2. OLED display
3. Headset TALK button with indicator light
4. Power (PWR) button
5. Headset communication group (GRP) button/ TALK button in TWO GROUPS mode
6. Headset speaker volume control (UP) / Menu selection button
7. Menu SET button
8. Headset speaker volume control (DOWN) / Menu selection button
9. Belt clipper
10. Battery cover
11. Charger terminals (Bottom of the Belt Pack)

- Belt Pack pairing setup key: 'PWR + SET'
- Manual hands off key: 'PWR + PWR' (Double click of PWR)

### BELT PACK CHARGER TERMINAL SPECIFICATION

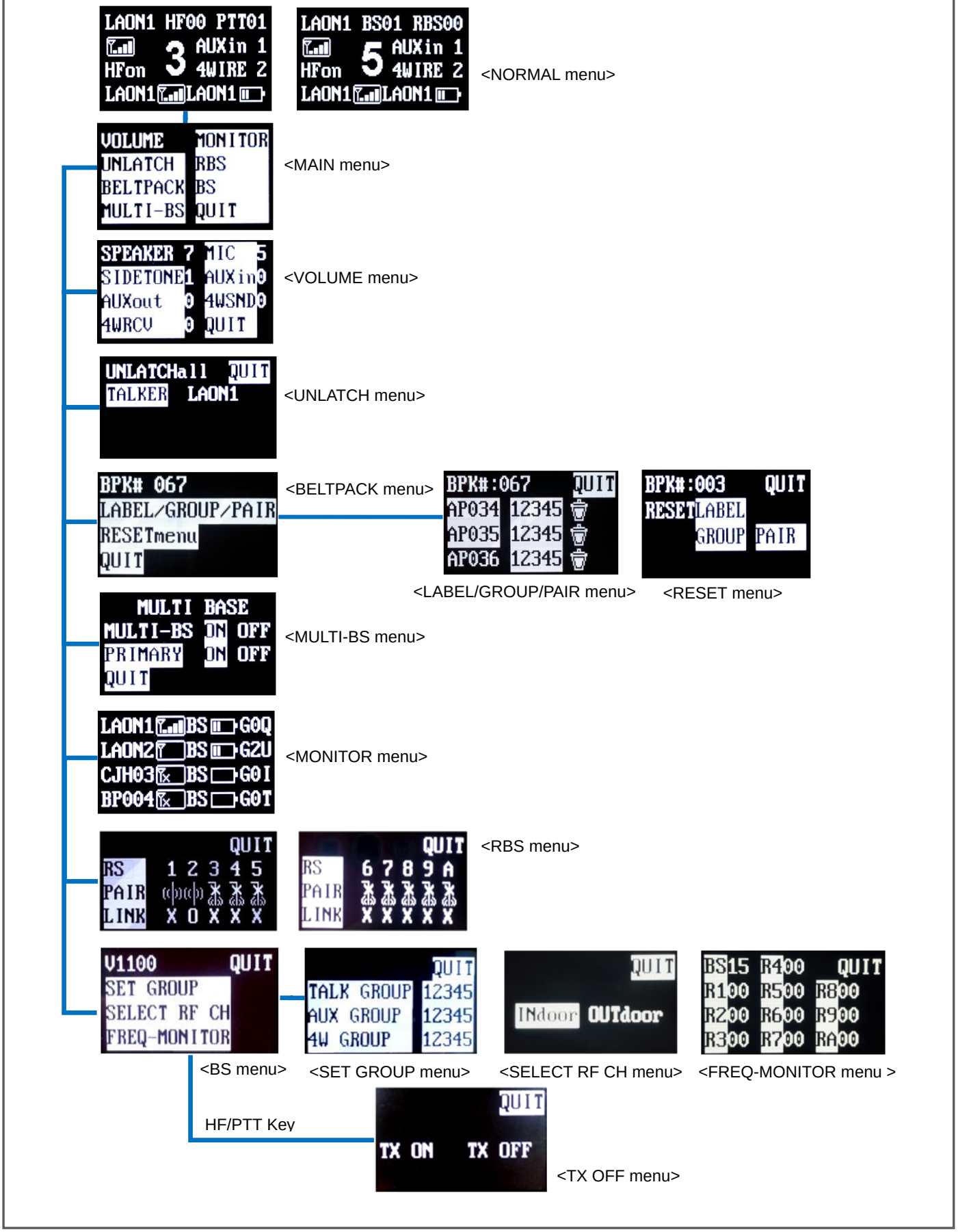



1. –
2. Temperature sensor
3. +

**NOTE**

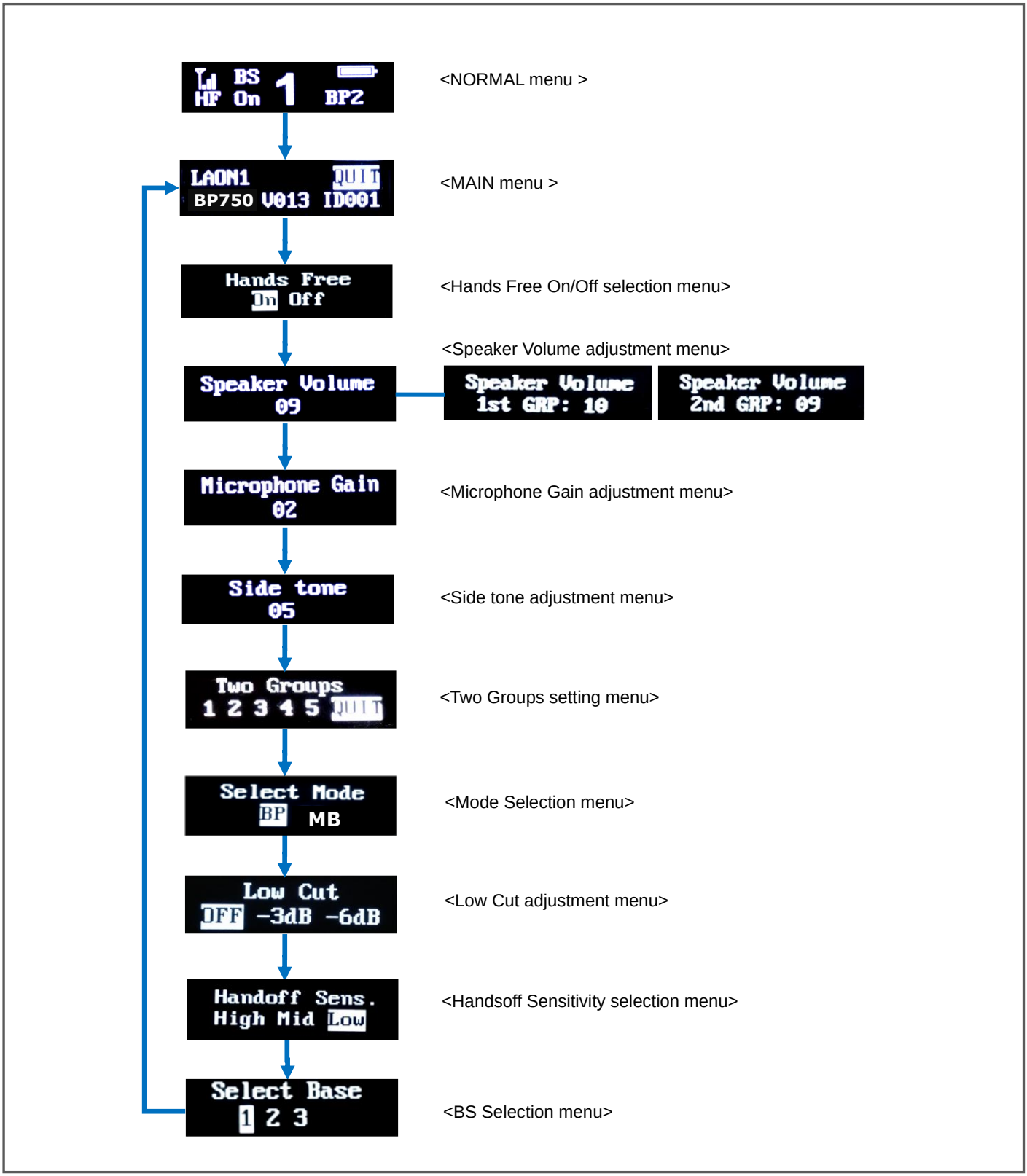
- Do not stand the Belt Pack direct on electric conductors such as bracelets, keys and etc. and do not short the metal contacts on the bottom of the Belt Pack with those electrically conducting material.
- It is necessary to store the battery after fully charged and separating from the Belt Pack.
- Turn off the Belt Pack before charging.

# BASE STATION MENU




**NOTE**: Menu displays will be in sleep mode if no touch is made for approximately 30 minutes. Touching any button on the front panel of the Base Station will have the screen waken up. Pressing SET button longer than 2 seconds on any menu screen will lead you to NORMAL menu.

# BELT PACK MENU




- Pressing SET button on the NORMAL menu will lead you to MAIN menu.
- On MAIN menu, press UP/DOWN direction key to move to the next menus.
- Pressing PRW button once on any menu screen will lead you to the NORMAL menu.
- In Two Groups set mode, the Speaker Volume adjustment will be available for each group individually.

# SECTION 3: SYSTEM SETUP AND CONNECTIONS

## BS750 BASE STATION SETUP

Following descriptions are stand-alone LT750 system configuration. Using additional devices such as Remote Stations, 4-wires, auxiliary input/outputs, and 8ohm speaker will be explained later on **ADDITIONAL DEVICES SETUP** in SECTION 5.

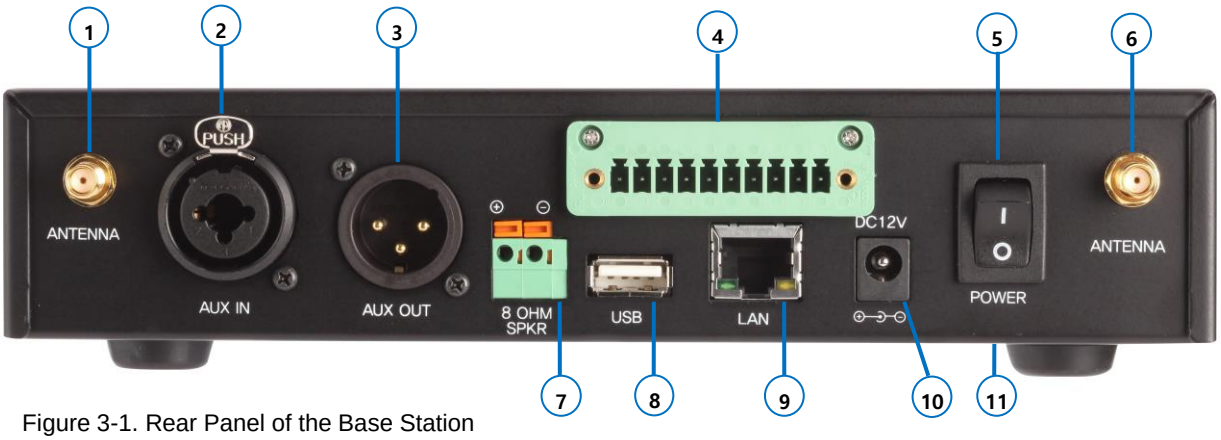



Figure 3-1. Rear Panel of the Base Station

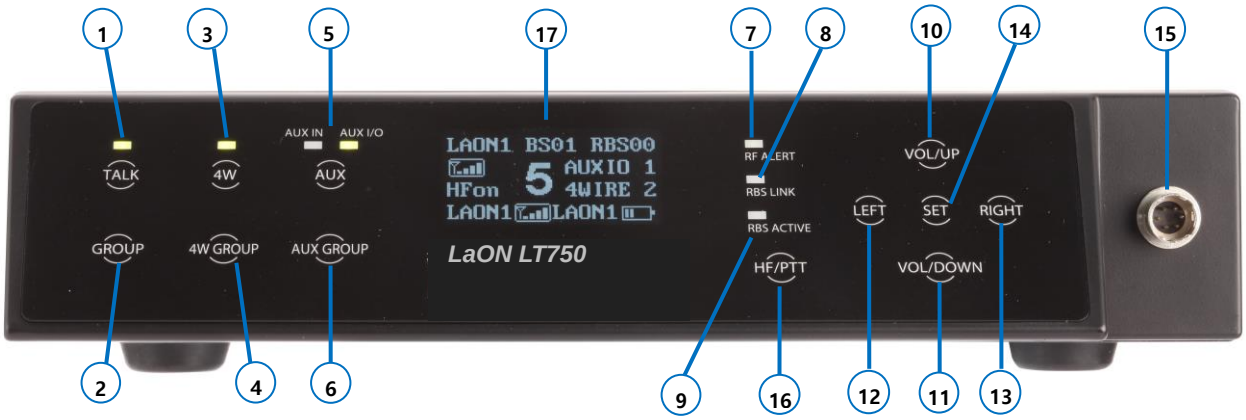



Figure 3-2. Front Panel of the Base Station

**Step 1:** Put two enclosed antennas to the antenna connectors (#1 and #6) on the rear panel of the Base Station. Turn the sleeve on each of the antenna connectors clockwise to tighten them, and ensure that the antennas are connected firmly.

**NOTE 1:** These two antennas must be positioned vertically and be folded completely as 90 degree. Otherwise, it will be caused to weaken the signal.

**NOTE 2:** While attaching the antennas directly to the rear panel of the Base Station, the Base Station should be away from any metal obstructions, walls, and electronic equipments that can create radio interference. It is highly recommended to place the antenna as high as possible in the center of the coverage and away from obstructions.

**Step 2:** Plug the DC cable from the enclosed wall-adapter power supply into the 12VDC POWER connector (#10) on the rear of the Base Station. Plug the large female connector at the end of the AC power cord into the power supply**.** Plug the other end of the AC power cord into a standard wall outlet.

**Step 3:** The headset is with 'Push-Pull Lock' type connector. Put a headset into the HEADSET connector (#15) on the front panel of the Base Station. To disconnect the headset, hold the plug on the headset connector and pull out slightly turning.

**Step 4:** Press the POWER switch (#5) on the rear panel of the Base Station to turn on the Base Station. 'DFS detecting' will be indicated on the Base Station's front panel display and once the detecting is completed, NORMAL menu will pop up as shown in Figure 3-3: The green light on top of the TALK button (#1), as shown in the Figure 3-2, should be flashing slowly indicating the readiness of Base Station to start operations.


Figure 3-3. NORMAL menu

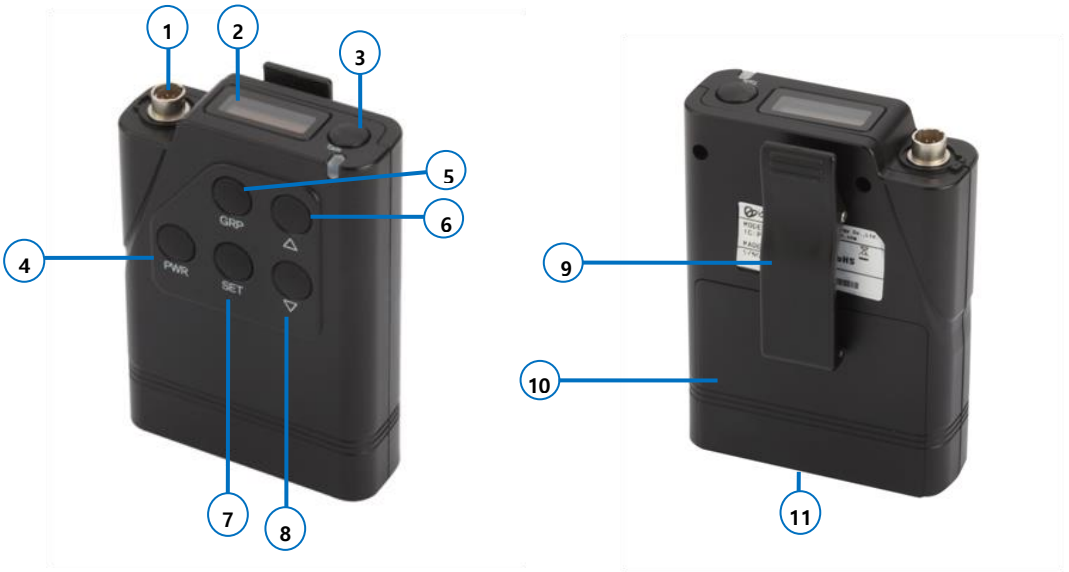
See the **BS750 BASE STATION OPERATION** in SECTION 4 for details about the NORMAL menu.

# BP750 BELT PACK SETUP AND PAIRING UP

When you operate each Belt Pack for the first time with the Base Station, you must pair up the Belt Pack with a Base Station. This pairing process allows a Base Station and a Belt Pack to recognize each other and an own cryptic code will be given for the corresponding system. The Base Station will identify all the paired up Belt Packs and recognize the difference between the Belt Packs. If a Belt Pack is added or replaced later, the new one is necessarily to be paired up with the Base Station. If the previous Belt Pack will not be in use, turn off the Belt Pack or do the paring process again with a different label.
Each Base Station allows up to one hundred twenty eight (128) Belt Pack connections. The Base Station monitors various information of the thirty two (32) Belt Packs, from the firstly paired up Belt Pack to thirty secondly paired up Belt Pack.

**NOTE:** BP750 can also be paired up with the Base Station, MS150.

## BELT PACK SETUP




Before pairing up the Belt Pack with the Base Station, set up all Belt Packs as following steps:

Slide the cover down to open the battery cover (#10), and put a fully charged rechargeable battery pack (BAT50) or battery sled with two fresh AA 1.5V alkaline batteries. Make sure the position of polarity (+, -) is correct. Close the battery cover.

# PAIRING UP BELT PACKS

Check out the power status of the Base Station and each Belt Pack's, which will be paired up with. To execute a paring process, the Base Station and Belt Packs should be turned on. Belt Packs should not go further than 3 feet (1 meter) from the Base Station while they are being paired.

**NOTE**: Once paring is completed, the Base Station and each Belt Pack should go further than 6.5 feet (2 meters) to operate otherwise, there could be audio breakups.


Figure 3-4. Front Panel of the Base Station

In NORMAL menu (#17) on the Base Station's front panel display, press SET (#14), then the MAIN menu appears, as shown in Figure 3-5. Under MAIN menu, scroll (#10, #11, #12, #13) to and select 'BELTPACK' and press SET (#14) then the BELTPACK menu appears, as shown in Figure 3-6.

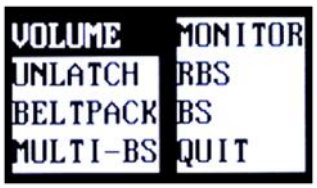



Figure 3-5. MAIN menu


Figure 3-6. BELTPACK menu

### SETTING THE MAXIMUM NUMBER OF BELT PACKS (BPK#)

Enter the maximum number of Belt Packs that you want to pair up with the Base Station. Under the BELTPACK menu, press SET(#14) on "BPK#" then input the maximum number by pressing UP, DOWN (#10, #11) buttons and press SET(#14) to save. Move to next line 'LABEL/GROUP/PAIR' and press SET(#14).

### CREATING BELT PACK LABELS, COMMUNICATION GROUPS AND PAIRING

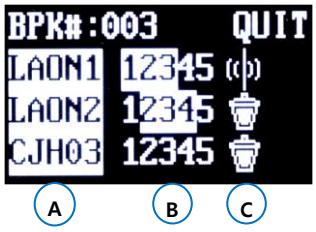



Figure 3-7. LABEL/GROUP/PAIR menu

A. Belt Pack Label
B. Communication Group
C. Pairing Icon

To set up the Labels and Communication Groups of Belt Packs, under the BELTPACK menu, move to and select 'LABEL/GROUP/PAIR'. The LABEL/GROUP/PAIR menu appears, as shown in Figure 3-7. The maximum number of Belt Packs set in BELTPACK menu will be displayed on the first row followed by BPK#. Belt Pack Labels will be shown as '_P001' through '_P128' sequentially depending on the maximum number of Belt Packs set and you can customize the Belt Pack Labels.

## PARING ICONS

( ): Factory default status with no input of paring data

( ): Data edited and being ready to execute paring

( ): Paring processing

( ): Paring failed

( ): Paring completed - Base station can communicate with Belt pack from this stage.

## CREATING OR CHANGING BELT PACK LABELS

To set Belt Pack Label, under the LABEL/GROUP/PAIR menu, move to Belt Pack Label section ('**A**') by pressing LEFT or RIGHT (#12, #13) and press SET on it to enter into the edit mode. Set the Label by pressing UP or DOWN (#10, #11) then the display will show alphabets and numbers sequentially. After setting of the Belt Pack Labels, press SET to save and move to Communication Group section ('**B**'). Then the icon ( ) will be changed to ( ).

When changing a Belt Pack Label for a Belt Pack which is already paired up, follow the same process. In this case, the icon ( ) will be changed to ( ) once you enter into the edit mode.

## ALLOCATING COMMUNICATION GROUPS TO BELT PACK

This process is to assign single or multiple group channels for the communication of each Belt Pack.

Move to a Communication Group number which you want to select by pressing LEFT or RIGHT. Single or multiple groups within the five groups, '1 2 3 4 5' can be set for each Belt Pack by selecting the Communication Group number and press SET on it to save one by one. To reverse the saved groups, press SET on the group number to be reversed.

In order to change the Communication Group for a Belt Pack which is already paired up, follow the same process. In this case, the icon ( ) will be changed to ( ) once you enter into the edit mode.

**NOTE 1:** Communication Group setting should be done correctly. Otherwise, it is not able to move out to the next step.

**NOTE 2:** Any Changes to be made in LABEL/GROUP/PAIR menu require paring process for the applicable Belt Packs to reflect the changes. After modifying the Belt Pack Label and or Communication Group, implement the pairing process again.

## READY FOR PAIRING PROCESSING WITH BASE STATION

Once the Belt Pack Label and Communication Group set is done in the LABEL/GROUP/PAIR menu of the Base Station and the applicable Belt Pack is ready, move on to the paring icon ( ) by pressing LEFT or RIGHT (#12, #13) in the LABEL/GROUP/PAIR menu of the Base Station.

## READY FOR PAIRING PROCESSING WITH BELT PACK

Turn on the Belt Pack by pressing PWR button for 2 seconds and confirm the NORMAL menu is displayed. When a Belt Pack is not paired up yet, the LED adjacent to the TALK button will be blinking in red.

## EXECUTING PARING PROCESSING WITH BASE STATION AND BELT PACK

Press SET on the paring icon ( ) in the menu display of the Base Station to execute paring processing. Then the Base Station is in 'paring processing mode' showing the icon ( . At this time, for the Belt Pack, press and hold the SET button on the front panel just after pressing and holding the PWR button. By doing this, the Belt Pack will also be in 'pairing processing mode' and the message, "Pairing…" will shortly appears on the Belt Pack display and you can release both buttons.

If the paring is completed successfully, the paring icon, ( ) will be shown in the Base Station display. And the Belt Pack display will be shown as Figure 3-8 and shortly shows the NORMAL menu. If the paring is failed, the display will be shown as Figure 3-9.

**NOTE 1:** When executing the paring processing with Belt Pack, after pressing and holding the PWR button, quickly press and hold the SET button otherwise, the Belt Pack power may be off.

**NOTE 2:** While the pairing process, all communications will be halted temporarily and will be recovered upon completing the pairing.

**NOTE 3:** When you pair up each Belt Pack with the Base Station for the first time, each ID number of the Belt Pack is generated sequentially.

### IF PAIRING COMPLETED PROPERLY:

The display of the Belt Pack shows Belt Pack Label with an ID number that is sequentially generated from "1" to "128".

If the paring is completed successfully "Paring…" message will be changed to "Paring Completed" within 20 seconds

as shown from Figure 3-8. And the LED adjacent to the TALK button of the Belt Pack is changed to green.

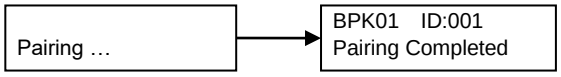



Figure 3-8: Pairing completed status

Move to QUIT and press SET button to back to the BELTPACK menu.
Repeat the paring processing for each Belt Pack.

### IF PARING IS FAILED:

After the message “Pairing...” appears on the Belt Pack display, up to 20 seconds will be taken until the message, “Pairing Failed” appears on the Belt Pack display. Try to process the paring again. If the paring is failed again, try again after rebooting of the Belt Pack. If these processes do still not work, please contact your dealer or manufacturer for the further supports.

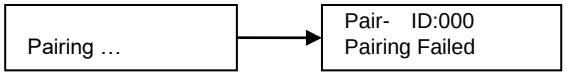



Figure 3-9 : Pairing failed status

### PARING FOR REPLACEMENT

When you pair up a new Belt Pack (‘BP002’) to replace one (‘BP001’) that is already in paired mode, turn off the ‘BP001’ and execute the paring processing with the Belt Pack, ‘BP002’. The ‘BP001’ can be in use with another alternative Belt Pack Label and ID after executing the paring up processing again.

**NOTE:** If a Belt Pack Label (ID) is duplicated, communication error may occur.

## RESET BELT PACK LABELS, COMMUNICATION GROUP, PAIRING


Figure 3-10. RESET menu

In RESET menu under the BELTPACK menu, you can reset all the present pairing data of Belt Pack Labels and or Communication Groups to the factory defaults. While processing resets on the Base Station and until the paring processing is completed again, the communication with the applicable Belt Pack is not available.

### RESET BELT PACK LABELS AND COMMUNICATION GROUP

Move to ‘LABEL’ or ‘GROUP’ and press SET button. The display shows “Yes No”, then move to “Yes” or “No” with RIGHT or LEFT button and select. If you go to QUIT and press SET button, you can go back to BELTPACK menu. Move to ‘LABEL’ and select “Yes” then, all existing Belt Pack Labels will be overwritten to the factory defaults to ‘_P001’ through ‘_P032’. When you select ‘GROUP’ and “Yes”, all the existing setups done earlier for Communication Groups will be overwritten to the factory default and all the paring icons are changed to ( ).

**NOTE:** Re-pairing is necessary to use the Belt Packs after reset. Take an enough caution to reset all the data unless it is really required. All data set earlier will be missing.

### RESET PARING

If you select “PAIR” in the RESET menu and “Yes”, existing Belt Packs’ pairing data with the Base Station will be lost. Under the BELTPACK menu, the maximum number of Belt Packs (BPK#), Belt Pack Labels and Communication Groups are also changed to factory default. And original AES code given earlier of the Base Station will also be changed then any Belt Packs paired up earlier are not able to communicate anymore with the Base Station. Therefore, all the pairing setups for the Belt Packs should be done again.

# BATCHG125 BATTERY CHARGER SETUP

The BATCHG125 is a seven-bay charger for charging the Belt packs, BAT50 and BAT150 Rechargeable Battery Pack. It is able to charge up to five Belt Packs with the BAT50 Rechargeable Battery Packs are equipped, and two BAT50 Rechargeable Battery Packs in about 4.5 - 5 hours. Using the Belt Pack/BAT150 dual bay, up to two BAT150 Rechargeable Battery Packs can be charged instead of the Belt Pack. LEDs show charging status at all times.

See the "**BATCHG125 Operating Instructions**" for details.

# SECTION 4: SYSTEM OPERATION

## BS750 BASE STATION OPERATION

Base Station is designed with soft-touch buttons to select menus, hand-free on/off, 4-wire, auxiliary input/output, communication group, and so on. LEDs on the front panel indicate each selected modes and link status.

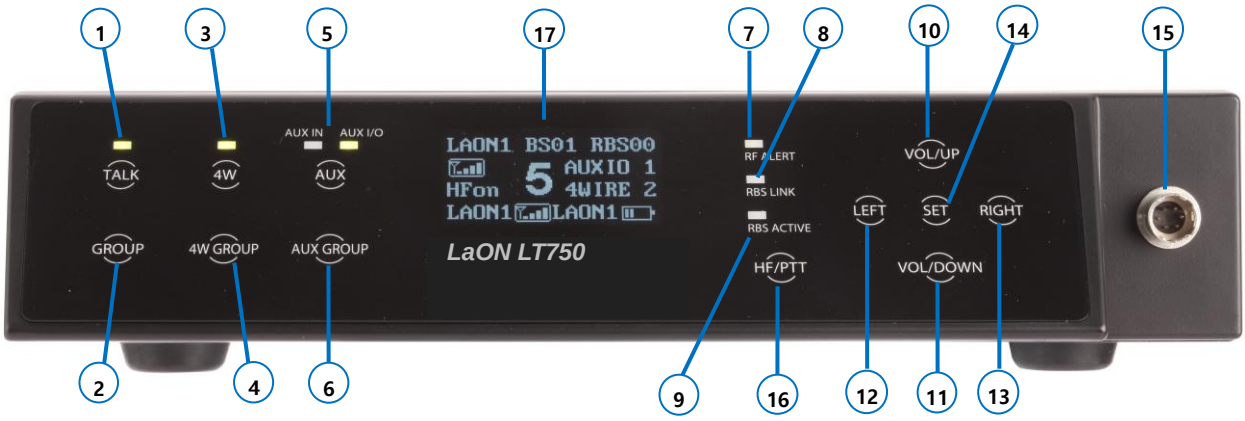



Figure 4-1. Front Panel of the Base Station

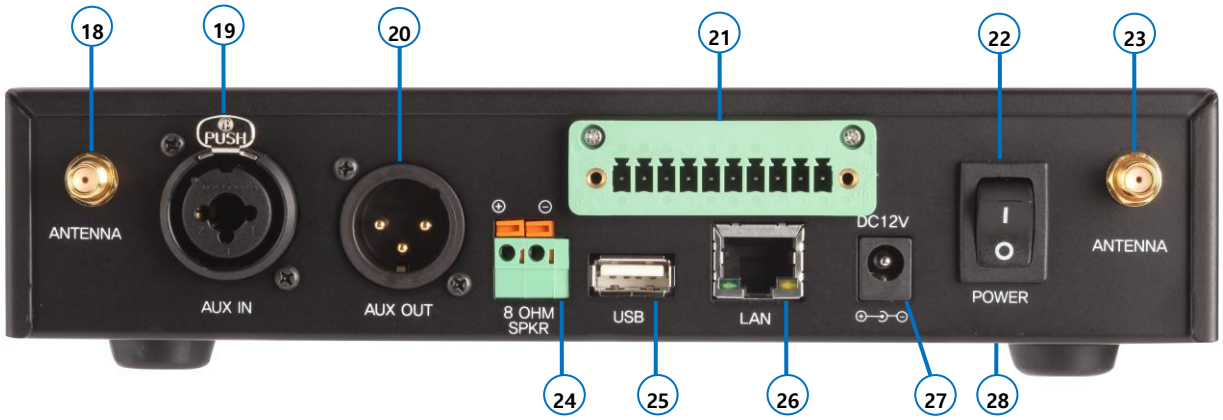



Figure 4-2. Rear Panel of the Base Station

### POWER ON/OFF

#### Power On

Turn on the POWER switch (#22) on the rear panel of the Base Station. NORMAL menu will be displayed after the frequency scan process for a minute on the Base Station's front panel as shown from Figure 4-1 and 4-3: The green light on top of the TALK button (#1) should be flashing slowly indicating the readiness of the Base Station to be in use.

#### Power Off

Turn off the POWER switch on the rear panel of the Base Station.

**NOTE:** When the green TALK light is on steady, the Base Station is transmitting audio data and when blinking, the Base Station is receiving the audio but not transmitting the audio data.

## NORMAL MENU

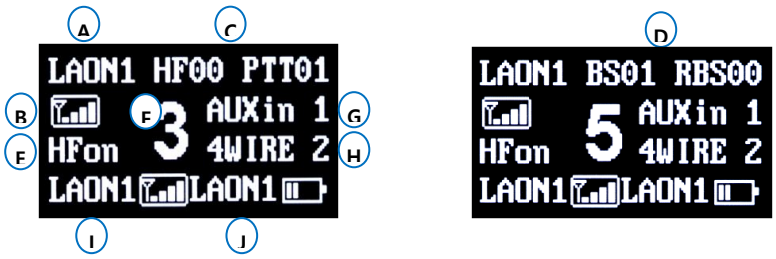



Figure 4-3: NORMAL Menu

NORMAL menu will pop up when the Base Station is turned on. In order to move to the MAIN menu, press SET button. When you press UP or DOWN button in the NORMAL menu, the headset speaker volume can be adjusted directly. Followings are descriptions for NORMAL menu.

Item **'A'** indicates the Belt Pack Label that is most recently communicated within the selected group channel of the Base Station.
Item **'B'** indicates Received Signal Strength Indication ('RSSI') of the Belt Pack that is most recently communicated with the Base Station. The RSSI level is presented graphically.
Item **'C'**, the number next to "HF", stands for the total number of Belt Packs that are transmitting the audio in Hands Free on mode and the numbers next to "PTT" stand for the total number of Belt Packs that are transmitting the audio in Push-to-Talk (Hands Free off) mode. The available number of Belt Packs that can transmit audio simultaneously is up to ten (10).
Item **'D'** will appear on the position of the item **C** alternatively, such as "BS07 RBS05". The number next to "BS" stands for the number of Belt Packs that are connected to the Base Station. The number next to "RBS" stands for the number of Belt Packs that is connected to the Remote Station. When the number of Belt Packs is in excess of 99, 'FF' will be indicated to instead.
Item **'E'**, "HFon" appears on the display when the headset of the Base Station is in "Hands Free On" mode operation. Also, when the headset of the Base Station is in "Push-to-Talk" (Hands Free off) mode operation, "HFoff" will appear on the display.
Item **'F'** indicates the Communication Group of the Base Station. The number "1" through "5" stands for the Communication Group that is selected by the Base Station operator. The character "A" stands that the Communication Group is selected to "A" (All). The Base Station is able to do simultaneous communications with all the selected groups that are set initially in the "TALK GROUP" menu of the Base Station.
Item **'G'** indicates the Communication Group of the auxiliary device. The display shows "AUXin" when AUX IN is enabled, and shows "AUXIO" when AUX IN and AUX OUT are enabled both. The number "1" through "5" next to "AUXin" or "AUXIO" stands for the Communication Group of the auxiliary device that is selected by the Base Station operator. The character "A" stands that the Communication Group is selected to "A" (All). The Base Station is able to do simultaneous communications with all the selected groups that are set initially in the "AUX GROUP" menu of the Base Station. The Communication Group will be shown on NORMAL menu as following examples.

AUXIn 2: Auxiliary Input is enabled and the Communication Group of auxiliary device is set to "2".
AUXIO 1: Auxiliary Input and Output are enabled both and the Communication Group of auxiliary device is set to "1".
AUXIO A: Auxiliary Input and Output are enabled both and the Communication Group of auxiliary device is set to "A" (All).
AUX X: Auxiliary devices are not enabled.

Item **'H'** indicates the Communication Group of the 4-wire. The display shows the status of the 4-wire enabled or disabled status and the corresponding 4-wire Communication Group. The number "1" through "5" next to "4WIRE" stands for the Communication Group of the 4-wire device that is selected by the Base Station operator. The character "A" stands for that the Communication Group is selected to "A" (All). The Base Station is able to do simultaneous communications with all the selected groups that are set initially in "4W GROUP" menu of the Base Station. The Communication Group will be shown on NORMAL menu as following examples.

4WIRE 1: 4-wire is enabled and the Communication Group of 4-wire is set to "1"
4WIRE A: 4-wire is enabled and the Communication Group of 4-wire is set to "A" (All).
4WIRE X: 4-wire devices are not enabled.

Item **'I'** indicates the Belt Pack Label that is in the lowest Received Signal Strength Indication (RSSI) level. The RSSI level is presented graphically.
Item **'J'** indicates the Belt Pack Label that is in the lowest battery Level. The battery level is presented graphically.

**NOTE**: Initially, when there has been no Belt Pack paired up, the Belt Pack Label indications of **'A', 'I'** and **'J'** in the NORMAL menu will be displayed as '_P000' and the corresponding graphic level indications will be empty.

## TALK AND COMMUNICATION GROUP BUTTONS

### Communication Group Button (#2)

Communication Groups of the Base Station is set as “1” (Group 1) by the factory default. Press the Base Station’s Communication Group (#2) button on the front panel of the Base Station and select Communication Group. The Communication Group will be changed from “1” to “5”, and to “A” (All) by each pressing. The Communication Group “1” will come again after “A” (All). Every time you press and release the Communication Group button, a voice message “Group o ne to five or all” will be heard from the headset. Selected Communication Group is displayed on the NORMAL menu of the Base Station, as following examples.

1: Base Station’s Communication Group is selected to “1”:
A: Base Station’s Communication Group is selected to “A” (All).

**NOTE:** The Communication Group of Base Station can initially be set with ‘TALK GROUP’ under the ‘SET GROUP of the BS menu.

If you select the Communication Group of Base Station same as that of 4W or AUX IO, the headset of the Base Station should be able to hear audio from the 4W or AUX IO, and the 4-wire or the auxiliary device should be able to hear audio from the headset of the Base Station.

### TALK Button (#1)

#### Push-To-Talk (hand-free off) Mode Setting

For push-to-talk (PTT) communication, press HF/PTT button. PTT mode is on when “HF off” appears on the screen. A voice message “Hands free off” will be heard in the headset. Press TALK button while talking.

**NOTE:** After setting the PTT mode, hands-free on mode is disabled until it is changed to hands-free-on mode.

#### PTT Mode Operation

Press and hold the TALK button for talking. In PTT operation, audio will be transmitted only while you are pressing the TALK button.

#### Hands-Free-On Mode Setting

For hands-free-on (HFon) communication, press HF/PTT button. Hands-Free-On mode is on when “HF on” appears on the screen. A voice message “Hands free on” will be heard in the headset. In hands-free-on mode, the Base Station’s headset can be operated in either hands-free-on or PTT operation.

#### Hands-Free-On Mode Operation

Press and release the TALK button to latch the transmission then the greed LED will be on. After latch the transmission, talk and listen work as in normal telephone conversation. Press and release the TALK button again to stop the transmission, and you can listen only.

#### TALK light

When the Base Station is transmitting, the light on top of the TALK button should be on steady. When the Base Station is ready but not transmitting, that is listen only status, the light on top of the TALK button will be blinking slowly.

## AUX AND AUX COMMUNICATION GROUP BUTTONS

### AUX Button (#5)

With AUX button you can select three options - auxiliary Input (AUX IN) only or auxiliary Input and Output (AUX I/O) or no use of auxiliary device. Each mode is set by pressing AUX button sequentially. When auxiliary input is selected, AUX IN light on top of the AUX button will be on. When you use the auxiliary input and the auxiliary output devices at the same time, select AUX I/O. When AUX I/O is selected, AUX I/O light on top of the AUX button will be on. When both are not activated, the lights of AUX IN and AUX I/O on top of the AUX button will be off.

### AUX Communication Group Button (#6)

Communication Group of the auxiliary device is set to use “1” (Group 1) by the factory default. Press AUX GROUP (#6) button on the front panel of the Base Station, and select Communication Group for the auxiliary device. The Communication Group will be changed from “1” to “5”, and to “A” (All) by each pressing. The Communication Group “1” will come again after “A” (All). Selected AUX Communication Group is displayed on the NORMAL menu of the Base Station, as shown in Figure 4-3:

**NOTE:** The Communication Group of AUX can initially be set in ‘AUX GROUP’ under the ‘SET GROUP of the BS menu.

## 4W AND 4W COMMUNICATION GROUP BUTTONS

### 4W Button (#3)

4W button allows for enabling or disenabling the connection of the 4-wire device. Two modes will be toggled by pressing 4W button. The light on top of the 4W button will be on or off depending on the selection status.

### 4-WIRE Communication Group Button (#4)

Communication Group of the 4-wire device is set as “1” (Group 1) by the factory default. Press the 4W GROUP (#4) button on the front panel of the Base Station, and select the Communication Group for the 4-wire device. The Communication Group will be changed from “1” to “5”, and to “A” (All) by each pressing. The Communication Group “1” will come again after “A” (All).
Selected 4-wire Communication Group is displayed on the NORMAL menu of the Base Station, as shown in Figure 4-3.

**NOTE:** The Communication Group of 4-WIRE can initially be set with ‘4W GROUP’ under the ‘SET GROUP of the BS menu.

## STAUS LIGHTS ON THE BASE STATION’S FRONT PANEL

### RF ALERT light (#7)

When there are audio breakups seriously, RF ALERT light will go on.

### RBS LINK light (#8)

When the Remote Station is connected, RBS LINK light will go on.

### RBS ACTIVE (#9)

When the Remote Station exchanges data with the Base Station, RBS ACTIVE light will be flashing.

## MENU CONTROL

### MAIN Menu

Press SET under the NORMAL menu, and the MAIN menu appears, as shown in Figure 4-4: Move to and press SET to select on each menu, VOLUME, MONITOR, UNLATCH, BS, RBS and BELTPACK. Move to and press SET to select QUIT or press SET for 2 seconds on any item to return to the NORMAL menu.

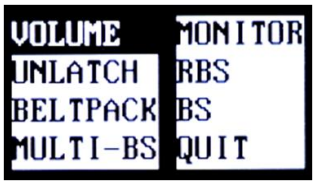



Figure 4-4. MAIN menu

### VOLUME Menu

Move to and press SET on VOLUME, to get into the VOLUME menu as shown in Figure 4-5. You can adjust volumes of the Base Station’s headset and external speaker by selecting SPEAKER. And you can adjust the microphone gain by selecting MIC, the side tone by selecting SIDETONE of the Base Station’s headset, auxiliary Input and output level by selecting AUXin and AUXout and 4-wire sending and receiving level by selecting 4WRCV and4WSND. Move to and select QUIT or press SET for 2 seconds on any item to return to the MAIN menu.


Figure 4-5. VOLUME menu

### Headset Volume Up and Down

Move to SPEAKER, press SET to select and adjust headset speaker volume with UP or DOWN. And also pressing UP or DOWN button under the NORMAL menu, enables you to adjust the volume directly.

#### Volume Up

Every time you press and release the volume up button, a beep sound will be heard from the headset. When the level is reached out to a maximum, a voice prompt, “maximum” will be heard from the headset.

#### Volume Down

Every time you press and release of the volume down button, a beep sound will be heard from the headset. When the level is reached out to a minimum, a voice prompt, “minimum” will be heard from the headset.

**NOTE:** Either a headset speaker or an external speaker can be used. The SPEAKER volume is for adjusting volume levels of both.

### Headset Side tone Up and Down

You can adjust headset side tone volume by selecting SIDETONE under the VOLUME menu. Use UP or DOWN to adjust headset side tone volume.

**Volume Up**

Every time you press and release the volume up button, a beep will be heard from the headset. When the level is reached out to a maximum, a voice prompt, “maximum” will be heard from the headset.

**Volume Down**

Every time you press and release of the volume down button, a beep will be heard from the headset. When the level is reached out to a minimum, a voice prompt, “minimum” will be heard from the headset.

### Headset Microphone Gain Up/Down

To adjust the headset microphone gain, move to and press SET to select MIC under the VOLUME menu, and then press UP or DOWN.

**Microphone Gain Up**

Every time you press and release the volume up button, the increased voice level will be heard from the headset while you are speaking to headset microphone. When the level is reached out to a maximum, a voice prompt, “maximum” will be heard from the headset.

**Microphone Gain Down**

Every time you press and release the volume up button, the decreased voice will be heard from the headset while you are speaking to headset microphone. When the level is reached out to a minimum, a voice prompt, “minimum” will be heard from the headset.

### Auxiliary Input and Output Volume Up/Down

You can adjust auxiliary input and output level by selecting AUXin and AUXout each under the VOLUME menu. Use UP or DOWN to adjust the auxiliary input and output level.

**Input or Output Volume Up**

Every time you press and release the volume up button, a beep sound will be heard from the headset. When the level is reached out to a maximum, a voice prompt, “maximum” will be heard from the headset.

**Input or Output Volume Down**

Every time you press and release the volume down button, a beep sound will be heard from the headset. When the level is reached out to a minimum, a voice prompt, “minimum” will be heard from the headset.

### 4-Wire Sending and Receiving Volume Up/Down

You can adjust 4-wire sending and receiving level by selecting 4WSND and 4WRCV each under the VOLUME menu. Use UP or DOWN to adjust the 4-wire sending and receiving level.

**Sending or Receiving Volume Up**

Every time you press and release the volume up button, a beep sound will be heard from the headset. When the level is reached out to a maximum, a voice prompt, “maximum” will be heard from the headset.

**Sending or Receiving Volume Down**

Every time you press and release the volume down button, a beep sound will be heard from the headset. When the level is reached out to a minimum, a voice prompt, “minimum” will be heard from the headset.

### NOTE: HEADSET SAFETY

- Please note that there could possibly be various root causes of distortion, echo or cut-off of the microphone sounds of the headset. At the initial set up, for the safe use, it is encouraged to set these volume levels lower and start to adjust for the best level required by various site environments and improve matters caused by the relevant headset where applicable.
- When the microphone gain, side tone or speaker volume on a specific headset is set too high, it is possibly cause a kind of echo or distortion. Try to these gain or volume down for improving and mitigate the relevant matter.

### UNLATCH Menu

Move to and press SET to select UNLATCH then the UNLATCH menu appears as shown in Figure 4-7.

When you need to unlatch the transmissions of a Belt Pack, use this UNLATCH menu. The Base Station operator may want to stop the transmission of specific Belt Packs that are used in hands-free-on mode or Push-to-Talk mode.

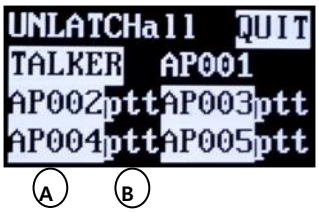



Figure 4-6. UNLATCH menu

Each Base Station can have up to eleven (11) full-duplex audio paths - 10 channels for Belt Pack and 1 channel for Base Station. The display shows up to ten (10) Belt Pack Labels that are transmitting to the Base Station or the Remote Station. Under the UNLATCH menu, move to and select 'UNLATCH all', then, all transmissions of the Belt Pack are unlatched. If all transmissions of the Belt Pack are unlatched successfully, the display shows only "QUIT" and "UNLATCH Completed" message on the second row. When you press SET to select TALKER, a current or most recently talked Belt Pack will be unlatched. If a transmission of the current or most recently talked Belt Pack is unlatched successfully, the text of "TALKER" and its Belt Pack Label will disappear from the UNLATCH menu. The item '**A'** column is for the Belt Pack Labels. The item '**B'** indicates the status of the Belt Pack that is in hands-Free-On or push-to-talk mode operation. The "hf" stands for the Belt Pack in hands-free-on mode operation. The "ptt" stands for the Belt Pack in push-to-talk mode operation. Move to and press SET to select each Belt Pack Label, then a transmission of the selected Belt Pack is unlatched. If a transmission of the selected Belt Pack is unlatched successfully, selected Belt Pack Label and its status will disappear from the UNLATCH menu.
You can scroll with UP or DOWN, and move with LEFT or RIGHT button. Move to and select QUIT or press SET for 2 seconds to return to the MAIN menu.

### BELTPACK Menu

See the "PAIRING UP BELT PACKS" in SECTION 4 for details.

### MONITOR Menu

Move to and press SET to select MONITOR then, MONITOR menu appears as shown in Figure 4-6:

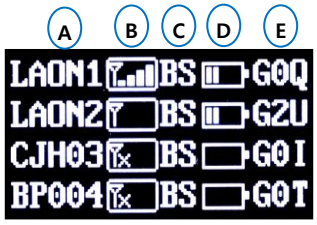



Figure 4-7. MONITOR menu

The MONITOR menu shows that each Belt Pack is connected to which Remote Station or Base Station. Also you can monitor each Belt Pack's RSSI, battery and microphone gain levels at the same time. From the monitor screen, users can monitor up to thirty secondly paired up Belt Packs.

The item '**A'** indicates the Label of each Belt Pack. The item '**B'** indicates the Received Signal Strength Indication (RSSI) level of each Belt Pack. The RSSI level is presented graphically. The item **'C'** indicates the applicable Belt Pack is connected to which Remote Station or Base Station. If the Belt Pack is connected to the Base Station, "BS" will appear. If the Belt Pack is connected to the Remote Station, a Remote Station's ID number "R1" through "RA(R10)" will appear. When the Belt Pack is not connected to any of the Remote Station or Base Station, the display shows a message "NC". The item '**D'** indicates the battery level of each Belt Pack. The battery level is presented graphically. The item '**E'** indicates the headset microphone gain of each Belt Pack. The number next to '**G**' stands for the level of the microphone gain from '1' to '5'.
You can scroll with UP or DOWN button, and move with LEFT or RIGHT button. Move to and press SET to select QUIT, or press SET for 2 seconds to return to the MAIN menu.

### RBS Menu

See the "REMOTE STATION SETUP" in SECTION 5 for details.

### BS Menu


Figure 4-8. BS menu

Group Selection menu '**SET GROUP'**

See the "Additional Devices and Communication Group Set Up" in SECTION 5 for details.

RF selection menu **'SELECT RF CH'**

See the "5GHz UNII FREQUENCY BAND" in SECTION 5 for details.

Frequency monitoring menu **'FREQ-MONITOR'**

See the "5GHz UNII FREQUENCY BAND" in SECTION 5 for details.

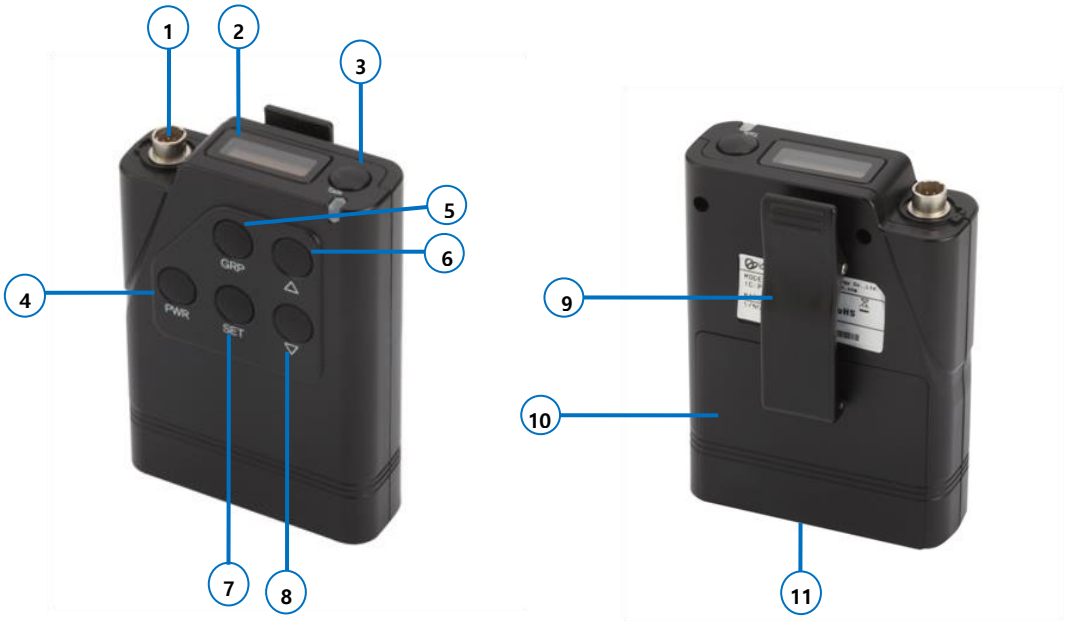
### BELTPACK, RBS and BS Menu

See the "**BP750 BELT PACK SETUP AND PAIRING UP**" in SECTION 3 and **"ADDITIONAL DEVICES SETUP"** in SECTION 5.

### VOICE MESSAGE IN THE HEADSET OF THE BASE STATION

- "Beep"
- "Maximum"
- "Minimum
- "Group one"
- "Group two",
- "Group three"
- "Group four"
- "Group five"
- "Group all"

# BP750 BELT PACK OPERATION




## POWER ON/OFF

**Power On**

Press the power button (#4, 'PWR') longer than three (3) seconds to turn on the Belt Pack. A voice message "Power on" will be heard from the headset, and the red TALK light adjacent to the TALK button will go on. After a few seconds, TALK light will be changed to green slow flashing, indicating the Belt Pack is ready to use, if the pairing with the Base Station is properly done.

**Power Off**

Press and hold the PWR button for approximately two seconds. A voice message "Power off" will be heard in the headset and then the green slow flashing TALK light will go off.

## NORMAL MENU ON THE BELT PACK'S UPPER PANEL DISPLAY

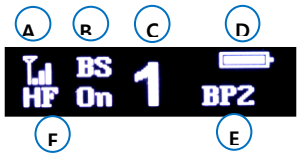



Figure 4-8. NORMAL menu

The item **'A'** indicates the Belt Pack's Received Signal Strength Indication (RSSI) level. The RSSI level is presented graphically.

The item **'B'** indicates that the applicable Belt Pack is connected to which Remote Station or Base Station. When the Belt Pack is connected to the Base Station, "BS" will be shown. When the Belt Pack is connected to the Remote Station, the combination of "R" and "ID number of the Remote Station" will be shown. The 'ID number' is assigned to each Remote Station upon pairing up with the Base Station. When a Belt Pack is connected to a Master Belt Pack, "MB" will be shown.

The item **'C'** indicates the Communication Group of the Belt Pack's headset. The numbers "1" through "5" stand for the number of the Communication Groups**.**

The item **'D'** indicates the Belt Pack's battery level. The battery level is presented graphically.

The item **'E'** indicates the Belt Pack's label. While the KEY LOCK is set, 'LOCK' will be indicated here to instead.

The item **'F'** indicates Belt Pack's operation mode. If the headset of Belt Pack is in the hands-free-on mode operation, "HF on" appears on the display. If the headset of Belt Pack is in the push-to-talk (Hands Free off) mode operation, "HF off" appears on the display.

## TALK AND BELTPACK COMMUNICATION GROUP BUTTONS

### Belt Pack Communication Group Button (#5)

Up to five (5) communication groups, single or multiple, can be allocated and configured flexibly to Belt Pack by the Base Station operator using the 'LABEL/GROUP/PAIR' menu under the 'BELTPACK' menu of the Base Station. For example, a

Belt Pack may belong to only one communication group of the group # 1, two communication groups of the group # 1 & 2, three communication groups of the group # 2, 3 & 5, four communication groups of the group # 1, 3, 4 & 5, and five communication groups of the group # 1, 2, 3, 4 & 5.
Belt Packs in the same communication group can talk with others in the designated group. Communication Groups of the Belt Pack is initially set to “1” (Group 1) by the factory default. To select Communication Group on the Belt Pack, press the Communication Group button (#5) on the front panel of the Belt Pack. It will be changed sequentially by each pressing, from “1” to “5” within the allocated Communication Groups by the Base Station operator. Every time you press the Communication Group button, a voice message will be heard from the headset. The selected Communication Group is displayed on the NORMAL menu of the Belt Pack, as following examples.

“1” : Belt Pack’s Communication Group is selected to “1”:
“5” : Belt Pack’s Communication Group is selected to “5”.

If you select a Belt Pack’s Communication Group same as that of 4-wire or auxiliary input/output, the headset of the Belt Pack should be able to listen the 4-wire or auxiliary device groups, and the 4-wire or auxiliary device should be able to listen the Belt Pack.

**NOTE:** In ‘TWO GROUPS’ mode of the Belt Pack, the Communication Group Selection button (#5) works as TALK button for the latter group selected in TWO GROUPS menu screen.

### TALK Button (#3)

#### Push-To-Talk (hand-free off) Mode Setting and Operation

You can set a Belt Pack to be in Push-To-Talk (PTT) communication mode in the “Hands Free” menu. A voice message “Hands free off” will be heard from the headset.

**NOTE:** After selecting the PTT mode, hands-free-on mode is disabled until it is changed to hands-free-on mode.

Press and hold the TALK button while talking. In PTT operation, audio will be transmitted only while you are pressing the TALK button.

#### Hands-Free-On Mode Setting and Operation

You can set a Belt Pack to be in hands-free-on (“HFon”) communication mode in the “Hands Free” Menu. A voice message “Hands free on” will be heard from the headset.
In order to transmit, press and release the TALK button to latch the transmission. After latching the transmission, talk and listen work as in normal telephone conversation. Press and release the TALK button again to stop the transmission, and you can listen only.

#### TALK Light

When the Belt Pack is transmitting, the light on top of the TALK button will be on steady. When the Belt Pack is ready but not transmitting, that is listen only status, the light on top of the TALK button will be flashing slowly. When the Belt Pack is not ready for transmitting the audio, the light on top of the TALK button will be flashing red rapidly.

#### TALK Light Operation

- Green on steady: Listen and talk mode by pressing TALK button or, listen two groups and talk to former group in TWO GROUPS mode which works with TALK button
- Green flashing slowly: Listen only mode
- Orange on steady: Listen two groups and talk to latter group in TWO GROUPS mode which works with GRP button
- Orange flashing: Listen and talk both groups in TWO GROUPS mode which works by pressing both TALK and GRP button
- Red flashing quickly: The Belt Pack is not paired up yet or is not linked to any Base Station or Remote Station (Out of coverage)
- Red on steady: When the battery level is low, a voice message, “Change the battery” will be heard from the headset and the green or orange LED will be changed to red.

## KEY LOCK SETUP

The Belt Pack keys can be locked to avoid any wrong operation by accident. Press and hold the PWR button (#4) of the Belt Pack and quickly press GRP button (#5) within one (1) second and release both. And the keys will be locked. In key lock mode, SET (#7) and GRP (#5) button will be inactivated and the NORMAL menu of the Belt Pack will show the text ‘LOCK’ in the bottom-right of the screen. To unlock, press and hold the PWR button (#4) and quickly press GRP button (#5) within one (1) second and release both again.

**NOTE 1:** Quickly operate to press the two buttons as instructed above otherwise, pressing PWR button longer than 2 seconds will make the Belt Pack turned off.
**NOTE 2:** When the Belt Pack is in TWO GROUPS mode, GRP button works as TALK button for the latter group selected in TWO GROUPS menu screen.
**NOTE 3:** Key lock setup will be effective regardless of rebooting of the Belt Pack.

## HOW TO CONTROL MENUS

### MAIN Menu

Press any button of the front panel if the screen is in sleep mode, then the 'NORMAL' menu appears.
Press SET button under the NORMAL menu, then he MAIN menu appears as shown in Figure 4-9.


Figure 4-9. MAIN menu

The item **'A'** indicates the Belt Pack's Label.
The item **'B'** indicates the Belt Pack's model name, software version and ID number.
On the MAIN menu, press SET to back to NORMAL menu.

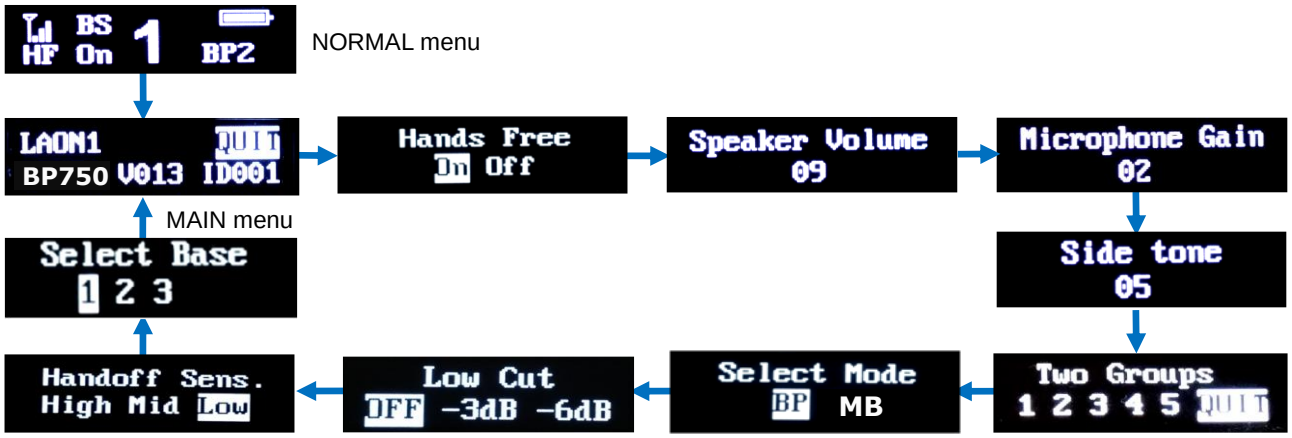



Figure 4-10. Menus shown sequentially

Under the MAIN menu with UP or DOWN button, move to each one of HANDS FREE, SPEAKER VOLUME, MICROPHONE GAIN, SIDETONE VOLUME, TWO GROUPS, SELECT MODE, LOW CUT and HANDSOFF SENSITIVITY menus sequentially and select a menu by pressing SET button. The selected menu will be flashing and ready to be edited. Use UP or DOWN button to change values. Press SET to save the settings and move to next field. Pressing once the power button will lead you to NORMAL menu directly.

### HANDS FREE Menu


Figure 4-11. HANDS FREE menu

Move to HANDS FREE menu, and press SET button to select a mode with UP or DOWN button. If a Belt Pack is in shared mode, there is no option to select Hands Free On mode and it only operates in "Off" mode.

### SPEAKER Volume Menu


Figure 4-12. SPEAKER VOLUME menu

Move to SPEAKER VOLUME menu, press SET button to select and adjust headset speaker volume level with UP or DOWN button. And press UP or DOWN button in the NORMAL menu will also allow you to change the speaker volume level directly.

#### Speaker Volume Up

Every time you press the volume up button, a beep sound will be heard from the headset. When the level is reached out to a maximum, a voice prompt, "maximum" will be heard from the headset.

#### Speaker Volume Down

Every time you press the volume down button, a beep sound will be heard from the headset. When the level is reached out to a minimum, a voice prompt, "minimum" will be heard from the headset.

**NOTE: HEADSET SAFETY**

- Please note that there could possibly be various root causes of distortion, echo or cut-off of the microphone sounds of the headset. At the initial set up, for the safe use, it is encouraged to set these volume levels lower and start to adjust for the best level required by various site environments and improve matters caused by the relevant headset where applicable.
- When the microphone gain, side tone or speaker volume on a specific headset is set too high, it is possibly cause a kind of echo or distortion. Try to these gain or volume down for improving and mitigate the relevant matter.

### MICROPHONE GAIN Menu

Figure 4-13. MICROPHONE GAIN menu

Move to MICROPHONE GAIN menu, press SET button to select and adjust headset microphone gain level with UP or DOWN button.

**Microphone Gain Up**

Every time you press the volume up button, increased voice level will be heard from the headset while you are speaking to headset microphone. When the level is reached out to a maximum, a voice message, “maximum” will be heard from the headset.

**Microphone Gain Down**

Every time you press the volume down button, decreased voice level will be heard from the headset while you are speaking to headset microphone. When the level is reached out to a minimum, a voice message, “minimum” will be heard from the headset.

### SIDETONE Menu

Figure 4-14. SIDE TONE menu

Move to SIDE TONE menu, press SET button to select and adjust headset side tone volume with UP or DOWN button.

**Sidetone Up**

Every time you press the volume up button, a beep sound will be heard from the headset. When the level is reached out to a maximum, a voice prompt, “maximum” will be heard from the headset.

**Sidetone Down**

Every time you press the volume down button, a beep sound will be heard from the headset. When the level is reached out to a minimum, a voice prompt, “minimum” will be heard from the headset.

### TWO GROUPS Menu

Figure 4-15. TWO GROUPS menu

TWO GROUPS menu is to set a ‘simultaneous listen mode’ for selected two groups within the allocated group channels to the Belt Pack. Once the TWO GROUPS mode is set, GRP button (#5) on the front panel of the Belt Pack works as TALK button for the latter group selected in the TWO GROUPS menu screen. And the TALK button (#3) is to talk to the former group selected in the TWO GROUPS menu screen. Pressing either TALK or GRP button enables to talk to either group. And pressing both TALK and GRP buttons at the same time allows talking to both groups at the same time. Meanwhile, in TWO GROUPS mode, both two groups set will always be heard.

Move to the ‘TWO GROUPS’ menu and press SET to enter into the edit mode. Move to the desired communication group number to select by pressing UP or DOWN button and press SET on the number. Then the communication group number will be reversed and set. On the screen of the TWO GROUPS menu, initially allocated communication group numbers to the Belt Pack will only be displayed. And, setting two (2) groups is necessary for the ‘two groups listen’ mode. Otherwise, the set value will not be saved. To reset the groups, reverse all the set values and reset. Move to QUIT on the menu with UP or DOWN button and press SET to save. To release the ‘two groups listen’ mode, reverse all the set values in the menu.

### TALK light operation in TWO GROUPS menu

- Green on steady: Listen and talk mode by pressing TALK button or, listen two groups and talk to former group in TWO GROUPS mode which works with TALK button
- Green flashing slowly: Listen only mode

- Orange on steady: Listen two groups and talk to latter group in TWO GROUPS mode which works with GRP button
- Orange flashing: Listen and talk both groups in TWO GROUPS mode which works by pressing both TALK and GRP button

**NOTE**: TWO GROUPS menu will not appear if there is initially only one group channel is allocated for the Belt Pack and if the system is MASTER Belt Pack mode.

### SPEAKER VOLUME Menu in TWO GROUPS mode


In TWO GROUPS set mode, the Speaker Volume for each group will be adjustable individually in each menu screen as shown from above. If you press UP and DOWN direction key in the initial screen mode of the Belt Pack, it will get the both two groups' speaker level adjusted at once, following an either fiducial group with the higher speaker level.

### MODE SLECTION Menu


Figure 4-16. MODE SELECTION menu

In MODE SELECTION menu, a Belt can be set into a master mode by selecting MB. The Belt Pack in MB mode performs as a mater station.
Once either the BP or MB mode is selected in the menu display, the power of the Belt Pack will be automatically off with a voice message, "power off". Turn on the Belt Pack again then it will work in the selected mode.
Upon the power on the Belt Pack in MB mode, 'DFS detecting' with a time indicator will be indicated in the Belt Pack display. Once the one (1) minute scanning process is completed, "MB" will appear in the bottom-right of the NORMAL menu. The menus of the Master Belt Pack (MB) are as shown from the figure 4-17.

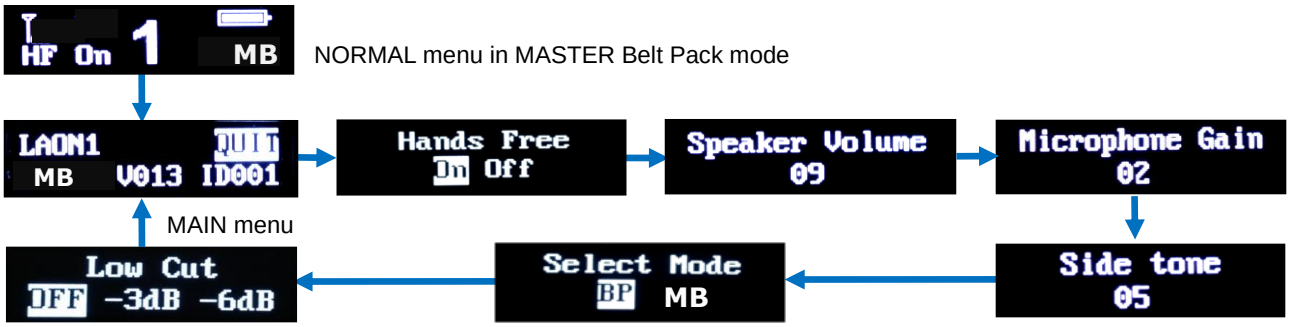



Figure 4-17. Master Belt Pack (MB) menus shown sequentially

It is able to confirm where the Belt Pack is connected from the NORMAL menu display of the Belt Pack. If a Belt Pack in BP mode is connected to the Master Belt Pack, "MB" will appear in the upper-left of the NORNAM menu. The menus of the Belt Pack linked to the Master Belt Pack are as shown from the figure 4-18.

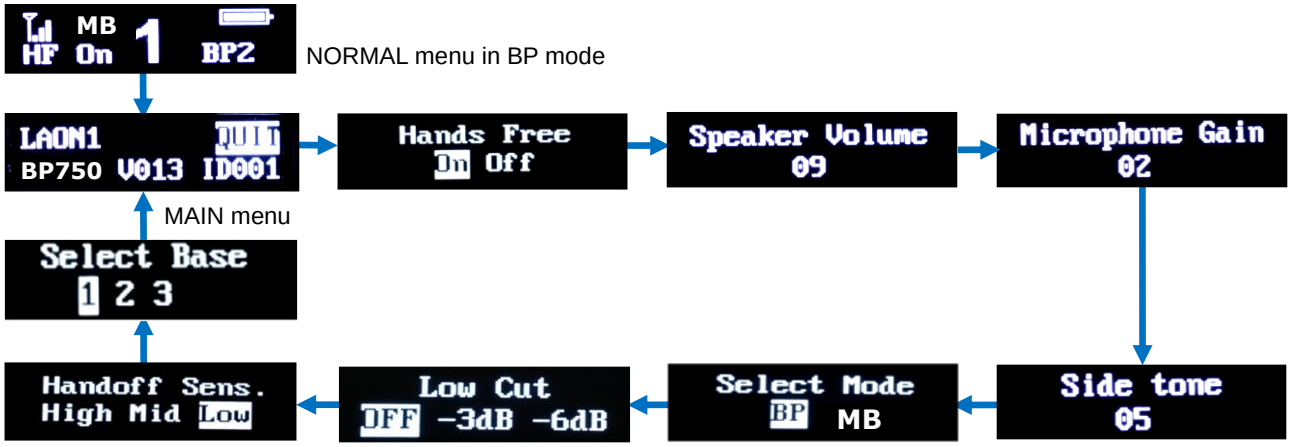



Figure 4-18. Belt Pack menus shown sequentially that is linked to the Master Belt Pack

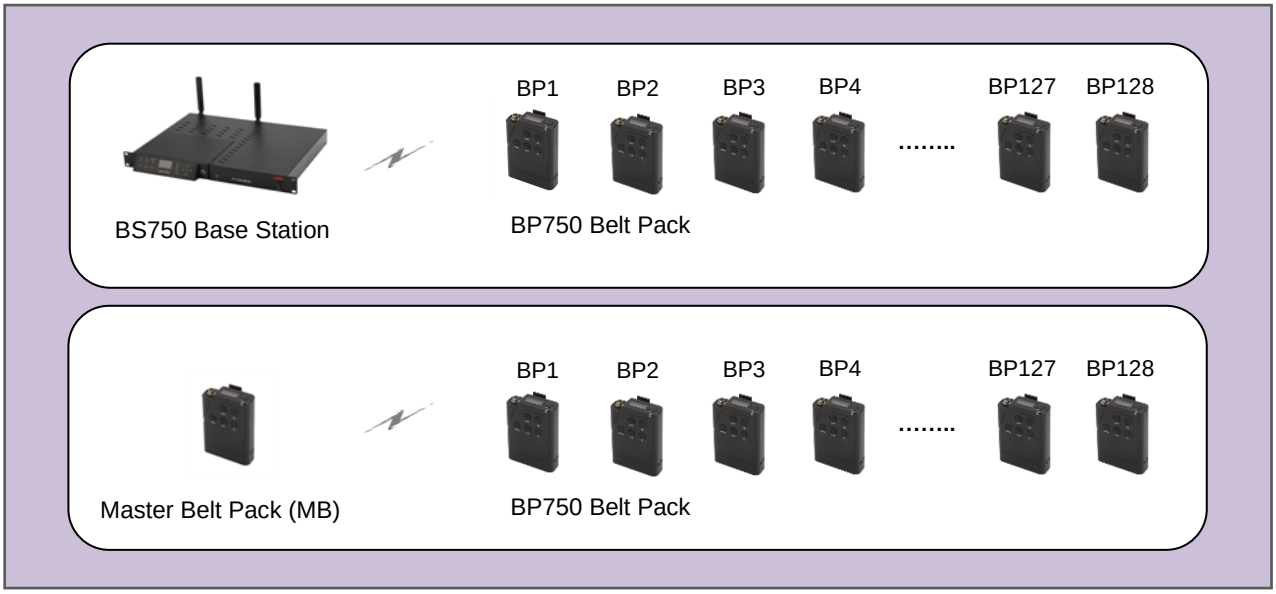
### Master Belt Pack mode operation

- Wireless communications among Belt Packs are available without Base Station by setting a Belt Pack as a master.
- Belt Pack which is already paired up with the Base Station once will be automatically linked to the Master Belt Pack when the communication group channel is selected to one (1) otherwise, the communication group channel should be set to one (1) for a connection to Master Belt Pack.
- Belt Packs will be automatically hand off between the Base Station and Master Belt Pack if they are located far between or in separate area. Manual handoff is also available with double click of PWR button. It is not recommended to operate both Base Station and Master Belt Pack in a same coverage. Additional pairing to the Master Belt Pack is not necessary once the Belt Pack is registered to the Base Station.
- In Master Belt Pack mode, system provides single communication group channel with five (5) full-duplex audio communication channels (1 MB + 4 BPs). Thus, for all Belt Packs to be linked to the Master Belt Pack should set the group channel to one (1).
- With a re-pairing of the Belt Pack to the Master Belt Pack, the communication group channels set earlier will not be in active and changed to the single group channel to one (1).

**NOTE 1.** The battery will last less in Master Belt Pack mode than the normal Belt Pack mode.

**NOTE 2.** If the Base Station and Master Belt Pack are co-existed in a same area, Belt Packs will be connected to the one with stronger signal which may be confused. Please use them in separate areas.

### Stand-alone operation in each independent area




### Usage in the same area

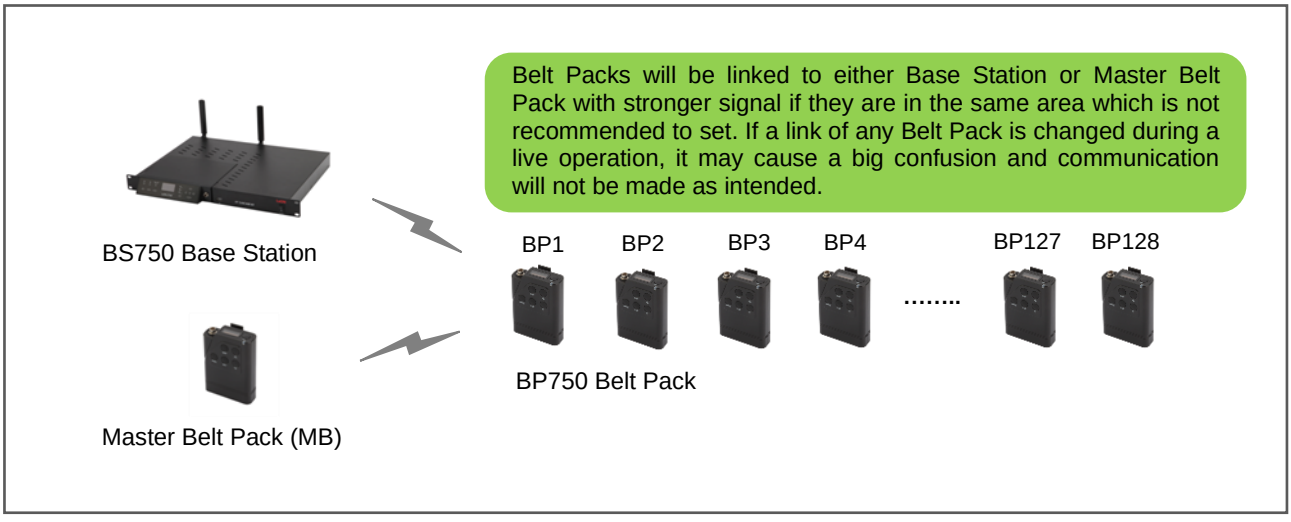



Figure 4-19. System usage of the Belt Pack in Master Mode

### Pairing with Master Belt Pack

BP750 Belt Pack in a group channel one (1) which is already paired up with the Base Station will automatically be linked to the Master Belt Pack and any additional pairing setup is not required. If a Belt Pack needs to be paired up again to the Master Belt Pack, follow the process below. In any case, the Belt Pack should initially be paired up with the Base Station, BS750.

- With the Master Belt Pack, confirm if the NORMAL menu is displayed on the screen. Press and hold the SET button on the front panel just after pressing and holding the PWR button.
  By doing this, the Master Belt Pack will be in 'pairing waiting mode' and the message, "Pairing…" will shortly appears on the Master Belt Pack display and you can release both buttons now.
- Master Belt Pack will be waiting for the pairing requirement from the Belt Pack for 20 seconds and all communications between Belt Pack will be halted during this time.
- Prepare the Belt Pack to be paired up with the Master Belt Pack within 3 feet (1 meter). Confirm the NORMAL menu is displayed on the Belt Pack. Press and hold the SET button on the front panel just after pressing and holding the PWR button.
  By doing this, the Belt Pack will be in 'pairing processing mode' and the message, "Pairing…" will shortly appears on the Belt Pack display and you can release both buttons now.
- If the pairing is completed successfully;
  The message, "Paring…" will be changed to "Paring Completed" within 20 seconds as shown from the Figure 4-20. And the LED adjacent to the TALK button of the Belt Pack is changed to green.

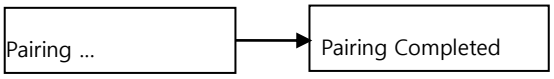



Figure 4-20: Pairing completed status

- If the pairing is failed;
  After the message "Pairing..." appears on the Belt Pack display, up to 20 seconds will be taken until the message, "Pairing Failed" appears in the Belt Pack display. Try to process again.

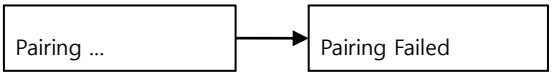



Figure 4-21: Pairing failed status

### LOW CUT Menu


Figure 4-22. LOW CUT menu

In LOW CUT menu, the low frequency component such as the sound of wind and air conditioner can be adjustable. To cut the low frequency at maximum, select -6db.

### HANDSOFF SENSITIVITY Menu


Figure 4-23. HANDS OFF SENSITIVITY menu

HANDS OFF SENSITIVITY menu is to set hands off sensitivity level. In case there are wide overlapping areas due to site or installation environment between the Base Station and Remote Station or Remote Stations, set the sensitivity to 'High' or 'Mid' and check out the most appropriate level. With the level, 'High', the hands off will be implemented the fastest sensibly.

### BS SELECTION Menu


Figure 4-24. BS Selection menu

In BS SELECTION menu, the Belt Pack can select one(1) Base Station from three(3) to be linked up. The Base stations that can be selected are indicated in number as 1, 2 and 3. After selecting one(1) Base Station here with SET button, pair up the Belt Pack to the Base Station selected. Once the Belt Pack has been paired up with any of the Base Stations, the

applicable number or numbers will be blocked in white. The Belt Pack can be paired up with up to three(3) Base Stations and select one of them to be linked up. Initially, the Base Station #1 is selected and the Belt Pack is paired up to the Base Station #1 as a factory default as shown from the left side of the screen of Figure 4-24 above.


Status 1 Status 2 Status 3

Figure 4-25. NORMAL menu screen indication upon the Base Station selection

The Base Station number which is selected from the Belt Pack is indicated in the NORMAL menu screen.

<Status 1> is an indication when the Belt Pack has been paired up to only one(1) Base Station and selected the Base Station. There is no indication of the Base Station number in this case.

<Status 2> is an indication when the Belt Pack has been paired up more than two(2) Base Stations and selected the Base Station #2 of those.

<Status 3> is an indication when the Belt Pack selected the Base Station #2 however, the Belt Pack is not paired up yet to the Base Station #2. In this case, 'Pair-' will be shown instead of the Belt Pack Label(ID) and red LED light of the Belt Pack will be blinking. Try to pair up the Belt Pack to the Base Station #2 for using appropriately or select another Base Station which the Belt Pack has been already paired up with.

In order to cancel the pairing with the Base Station #2 and #3, select the applicable Base Station number in BS SELECTION menu and, press PWR and then SET button of the Belt Pack, same button operation of pairing but without the operation of Base Station's end. In other words, try to make the 'Pairing failed' status to remove the pairing record. And confirm if the white block on the Base Station number is reversed in BS SELECTION menu. In case the Belt Pack is paired up with only one(1) Base Station, the pairing record will not be deleted.

If one of the Base Station which is already in 'pairing done' status (in white block on the number) is selected and, the Belt pack implements pairing again regardless whether it is with the same Base Station or another Base Station, the Belt Pack will be connected to the Base Station which the Belt Pack has been paired up to lastly. When set an additional Belt Pack pairing with an additional Base Station, in the BS SELECTION menu, select a Base Station number which are not yet paired up without a white block.

**NOTE:** If no action is taken for 10 seconds on any Belt Pack menus, all changes made will be saved automatically except any setup in TWO GROUPS menu and the display will be off.

## CHANGE BATTERIES

When Battery level became weak, a voice message, "Change battery" will be heard in the headset. When this happens, open the battery cover by sliding down, and remove batteries from the Belt Pack. The removable battery sled will hold two 1.5v alkaline batteries. When you use two alkaline batteries, insert two 1.5v alkaline batteries into the battery sled, and put it in the battery holder on the rear of the Belt Pack. When replacing a battery, make sure the position of polarity (+, -) is correct.

### VOICE MESSAGE IN THE HEADSET OF THE BELT PACT

- "Power on"
- "Power off"
- "Hands free on"
- "hands free off"
- "Beep"
- "Maximum"
- "Minimum"
- "Audio channel is busy"
- "Unlatched"
- "Change battery"
- "Group one"
- "Group two"
- "Group three"
- "Group four"
- "Group five"
- "Out of coverage"

# SECTION 5: ADDITIONAL DEVICES SETUP

The following instructions are regarding for connections and setups additional devices such as 4-wire intercoms, auxiliary audio devices, external 8 ohm speakers and Remote Stations.


Figure 5-1. Front Panel of the Base Station

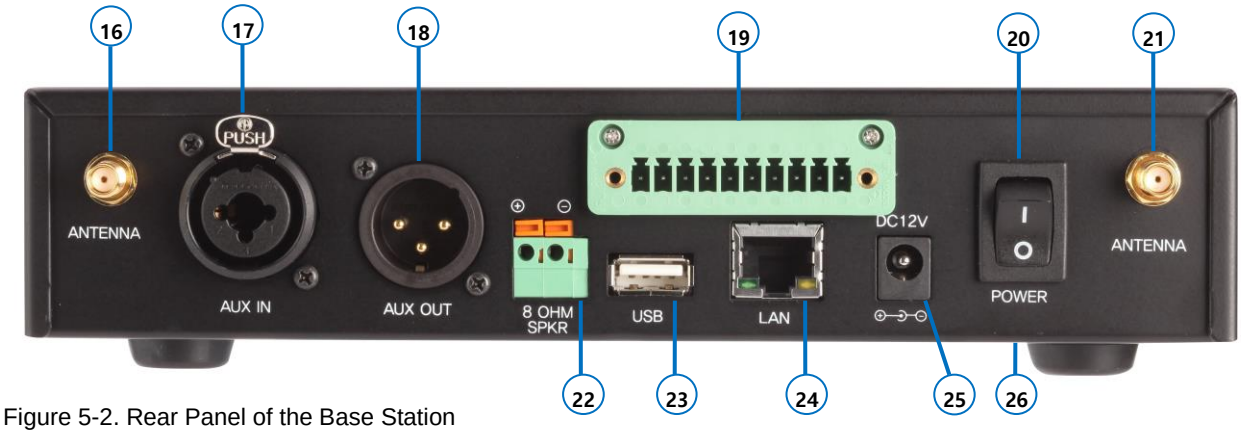
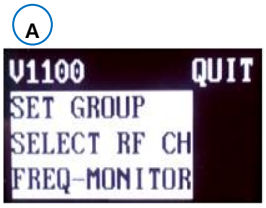



Figure 5-2. Rear Panel of the Base Station

## Additional Devices and Communication Group Set Up

In order to set Communication Group channels for external devices and the Base Station, select 'SET GROUP' in the BS menu. The display shows the Software version information of the Base Station and the ID of a frequency band currently being used at the Base Station will be shown on the first row as shown from Figure 5-3.




A: Software version of the Base Station

Figure 5-3. BS Menu


Figure 5-4. SET GROUP Menu

On SET GROUP menu, move to each row with direction buttons to set single or multiple Communication Group channels to the additional devices and the Bas Station. TALK GROUP is to set for a headset of the Base Station. Once the Communication Groups are assigned for AUX and 4-Wire device, the Base Station and Belt Packs can communicate with the external devices by selecting the same group channel.

For a headset of the Base Station, select "TALK GROUP", for Auxiliary device, select "AUX GROUP"; and for 4-Wire, select "4W GROUP". In each row, use LEFT or RIGHT to move to desired Communication Group number from '1' to '5. Single or multiple groups within the five groups, '1 2 3 4 5' can be set for each device by moving onto the Communication Group numbers and pressing SET to save one by one. Once the Communication Group channels are set initially in this menu, operator can select a group number to communicate within the range from the front panel of the Base Station. Move to and select QUIT to return to MAIN Menu.

# 4-WIRE INTERCOM SETUP

**Step 1:** When you use with a 4-wire intercom device, plug the enclosed 10 pin spring clamp connector into the '4-WIRE connector' (#21) on the rear panel of the Base Station, as shown in Figure 5-6. Put wires as following wiring map into 10 pin spring clamp connector. To plug a cable, wire into the 10-pin spring clamp connector, push and hold an orange-colored wire-release latch on the top of the 10 pin spring clamp connector, then put a cable wire into its relevant pin and release a wire-release latch.

| Pin | Function | descriptions |
|---|---|---|
| 1 | Input+/Output+ | |
| 2 | Input-/Output- | |
| 3 | NC(No Connection) | |
| 4 | NC | |
| 5 | GND | 4-wire |
| 6 | 4-wire output - | 4-wire |
| 7 | 4-wire output + | 4-wire |
| 8 | 4-wire input - | 4-wire |
| 9 | 4-wire input + | 4-wire |
| 10 | NC | |

Figure 5-5. Pin assignments for the '4-WIRE connector'

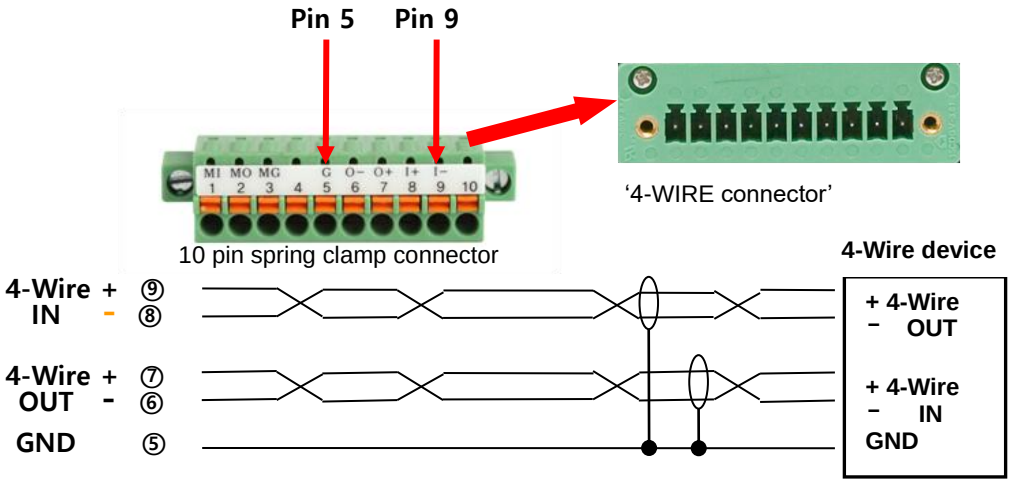



Figure 5-6. 4-wire connection

**NOTE:** It is recommended to use shielded twisted pair wire.

**Step 2:** Activate the 4-wire connection and set 4-wire Communication Group

### 4-WIRE BUTTON

By toggling 4W button (#3) on the front panel of the Base Station, the 4-wire connection can be activated and deactivated. When the 4-wire intercom is in use, the light on top of the 4W button should go on.

### 4-WIRE COMMUNICATION GROUP BUTTON

Communication Groups in the Base Station are set as "1" (Group 1) by default. Press 4-wire Communication Group button (#4) and select Communication Groups (1, 2, 3, 4, 5 or "A") for the 4-wire device. The Communication Group will be changed from "1" to "5", and then to "A" (ALL) by each pressing. The Communication Group "1" will come again after "A" (ALL)". Selected 4-wire Communication Group will be on NORMAL Menu as shown in Figure 5-1. When the Base Station or Belt Packs set a same Communication Group channel as that of the 4-wire, they can communicate with 4-wire device.

**Step 3:** To adjust the 4-wire intercom sending and receiving levels, under the MAIN menu of the Base Station's front panel, move to and select VOLUME. Then the VOLUME menu appears, as shown in Figure 5-7:


Figure 5-7. VOLUME menu

To adjust the 4-wire intercom receiving level, under the VOLUME menu, move to 4WRCV, and pressing SET button will lead you to volume values. You can change the level with UP or DOWN button. Listen to the audio input in your headset as you adjust the 4-wire receiving level. After adjusting the level, press SET button, move to 4WSND, and pressing SET button will lead you to volume values. You can adjust 4-wire sending level in the same way. While speaking into your headset microphone, adjust the 4-wire sending levels to the desired level. Pressing SET for 2 seconds will lead you to the NORMAL menu.

## AUXILIARY DEVICE SETUP

**Step 1:** When you use auxiliary device, such as another intercom or other audio sources, put its output cable connector into the AUX IN connector (#19) and its input cable connector into the AUX OUT connector (#20), as the following pin connections. The AUX OUT and AUX IN connectors are 3-pin XLR type for balanced +20dBV (10V) maximum level.

Pin 1 : Ground
Pin 2 : Audio +
Pin 3 : Audio –

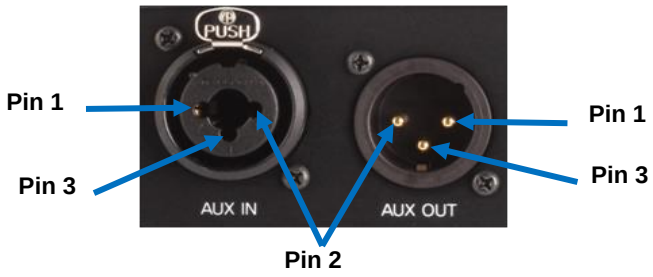



Figure 5-8. AUX IN and AUX OUT Connectors

**Step 2:** Activate the auxiliary input or auxiliary Input /Output connection and set the Communication Group

**AUX BUTTON**

There are two lights on top of the AUX button (#5). By pressing the AUX button sequentially, you can select auxiliary input (AUX IN) only or auxiliary input and output (AUX I/O) at the same time or neither of them. Both lights should go off when you inactivate the external auxiliary device.

**AUX COMMUNICATION GROUP BUTTON**

Communication Groups in the Base Station are set as “1” (Group 1) by default. Press auxiliary Communication Group button (#6) and select Communication Groups (1, 2, 3, 4, 5 or A) for auxiliary device by pressing SET on each Communication Group number. The Communication Group will be changed from “1” to “5”, and to “A” (All) by each pressing. The Communication Group “1” will come again after “A” (All). Selected auxiliary Communication Group will be on NORMAL Menu, as shown in Figure 3-3: When the Base Station or Belt Packs set a same Communication Group as that of the auxiliary device, they can communicate with the auxiliary device.

**Step 3:** To adjust the auxiliary input volume level, under the MAIN menu of the Base Station’s front panel display, move to and select VOLUME. Then the VOLUME menu appears, as shown in Figure 5-9:


Figure 5-9. VOLUME menu

Under the VOLUME menu, move to and select AUXin which will lead you to volume values. You can change values by UP or DOWN button. Listen to the audio input in your headset and adjust the auxiliary receiving level. After adjusting the level, press SET, Move to AUXout and press SET button which will lead you to volume values. You can adjust auxiliary sending level in the same way. While speaking into your headset microphone, adjust the auxiliary sending levels to the desired listening level. Pressing SET for 2 seconds will lead you to the Normal menu.

## EXTERNAL SPEAKER SETUP

**Step 1:** When you use external 8 ohm speaker, connect its cable wire to the 8 OHM SPKR 2-pin Spring Clamp connector (#24) on the rear panel of the Base Station, as the following pin connections. To plug a cable wire into the 2-pin spring clamp connector, push and hold an orange-colored wire-release latch on the top of the connector, then put a cable wire into its applicable pin and release a wire-release latch.

Pin 1: Audio +
Pin 2: Audio -

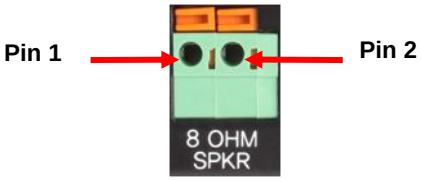



Figure 5-10. 8 OHM SPKR 2-pin Spring Clamp connector

**Step 2:** To adjust the speaker volume, under the MAIN menu of the Base Station's front panel display, move to and select VOLUME. Then the VOLUME menu appears. Under the VOLUME menu, move to and select SPEAKER will lead you to volume values. You can change the levels with UP or DOWN button.

**VOLUME UP ADJUSTMENT**

Every time you press the volume up button, a beep sound will be heard from the external speaker. When the level is reached out to the maximum, a voice prompt, "maximum" will be heard from the external speaker.

**VOLUME DOWN ADJUSTMENT**

Every time you press the volume down button, a beep sound will be heard from the external speaker. When the level is reached out to the minimum, a voice prompt, "minimum" will be heard from the external speaker.

**NOTE:** Either a headset speaker or an external speaker can be used; The SPEAKER volume is for adjusting the volume of both.

# REMOTE STATION SETUP

A Remote Station (RBS) can be connected to the Base Station through LAN, composing customized and extended coverage, and enabling automatic roaming between coverage zones. The Remote Station supports communication with Belt Packs in remote area from the Base Station. Standard STP cable is used to connect the Remote Station either directly to the LAN port on the rear panel of the Base Station or via the Network Switch. Remote Station can be powered by local electricity or batteries or network switching device which has the Power-over-Ethernet (PoE) function. Remote Station shares up to eleven full duplex audio paths with the Base Station within the coverage area. Up to ten (10) Remote Stations can be connected to the Base Station. It is recommended to compose the network exclusively for LaON intercom system. If the existing network at the site is used there could possibly a network traffic, delay, audio breakups and etc in the wireless intercom communications.


1. ANTENNA connector
2. ANTENNA connector
3. Null
4. Status lights
5. LAN RJ-45 connector with the PoE function.
6. USB connector
7. 12VDC POWER connector
8. Cover
9. Remote Station holder (optional)

The instructions for the Remote Station setup and installation will be followed as below order. Take enough cautions for notes.

1. IP network information setup – Not required to compose an exclusive network
2. Pairing with the Base Station
3. Network configuration for the Base Station and Remote Station
4. Coverage test
5. Remote Station installation and notes

**Step 1:** IP Network information setup with a configuration tool program. (This is not required if an exclusive network is composed)

Download the LAON provided configuration tool program 'LXSetting.exe' on your PC and connect the PC with the Base Station through USB cable. Run the program on your PC and set up IP Network information required as following instructions.

**CONFIGURATION PROGRAM MAIN DISPLAY**

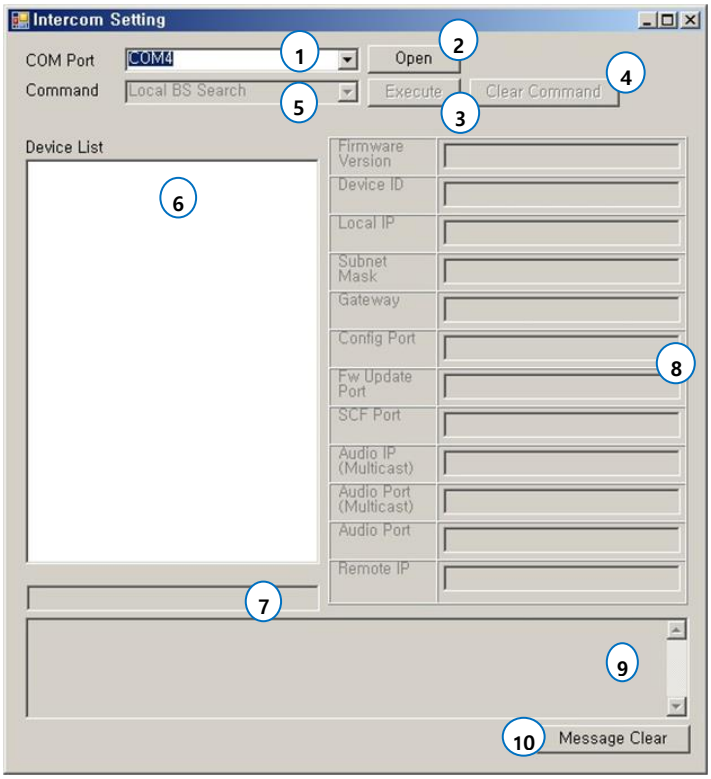



Figure 5-12. Main display of the configuration tool program

1. Serial port selection window
2. Serial port Open/Close button
3. Command execution button
4. Clear button for the executed Command
5. Command selection drop down menu and display window
6. Devices display window – BS and Remote Station
7. Command execution result display window
8. Network information display window
9. Additional message display window
10. Additional message delete button

### 1) COM PORT OPEN

Select the COM port being used on the PC from the drop down menu. Click ‘Open’ then, the pop up message ‘COM Port opened’ will be displayed if the correct port is selected as shown in the Figure 5-13.

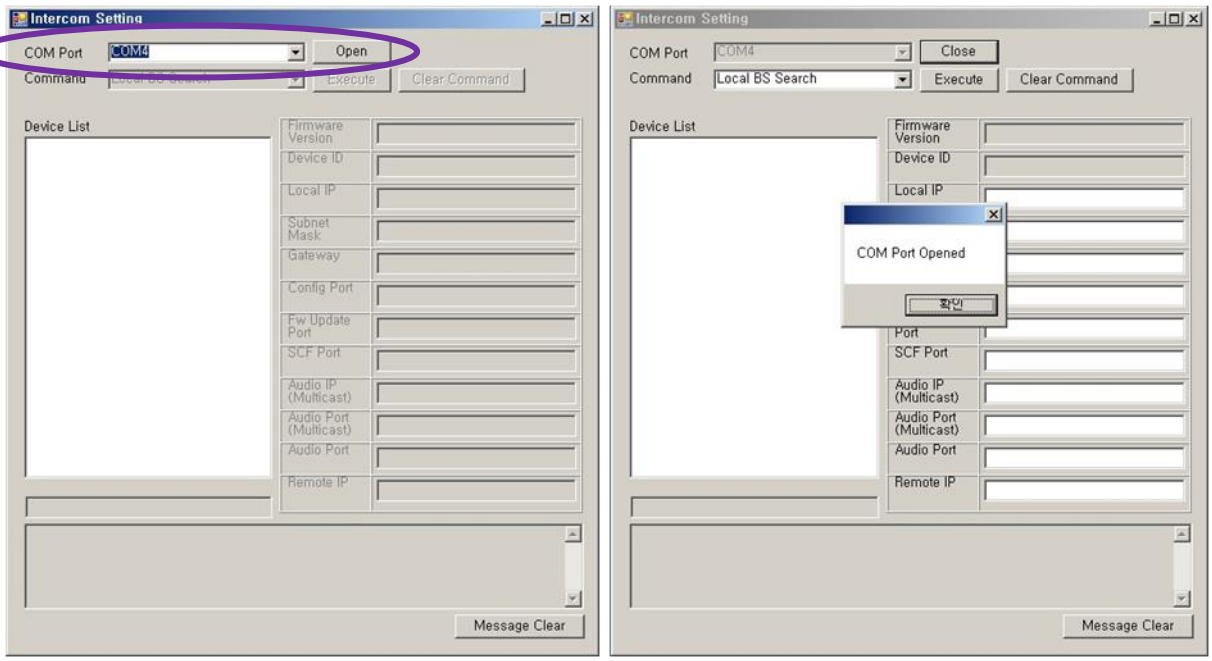



Figure 5-13. COM Port Open

### 2) DEVICE SEARCH

From the ‘Command’ selection drop down menu, click ‘Local BS Search’ and ‘Execute’ button. Then, the Base Station (‘BS’) being connected with the PC through USB cable will be detected in the ‘Device List’ window. Also, Remote Station (‘RBS’) list will be followed as shown from the Figure 5-14.

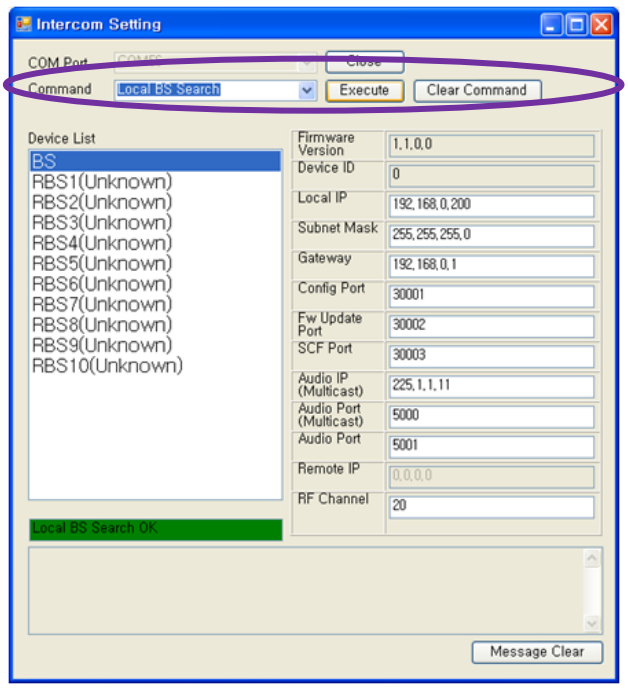



Figure 5-14. Device Search

### 3) RBS CONNECTION STATUS

To confirm the Remote Station connection status, select the applicable Remote Station to confirm from the 'Device List' and select 'Remote RBS Search' from the 'Command' selection drop down menu and click 'Execute' button then, the network connection status will be displayed as 'Connected' or 'Disconnected' as shown from the Figure 5-15.

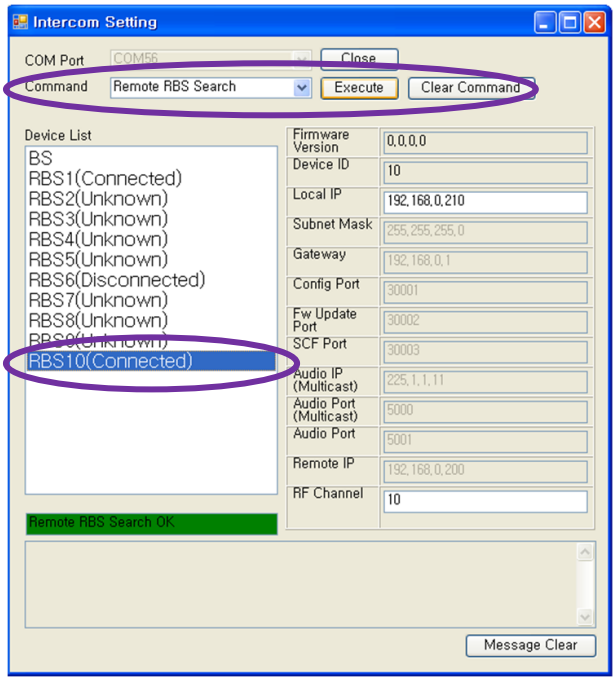



Figure 5-15. RBS connection status

### 4) NETWORK INFORMATION DISPLAY

Select a device, BS or a RBS to display the Network information details of the applicable device as shown from the Figure 5-16.

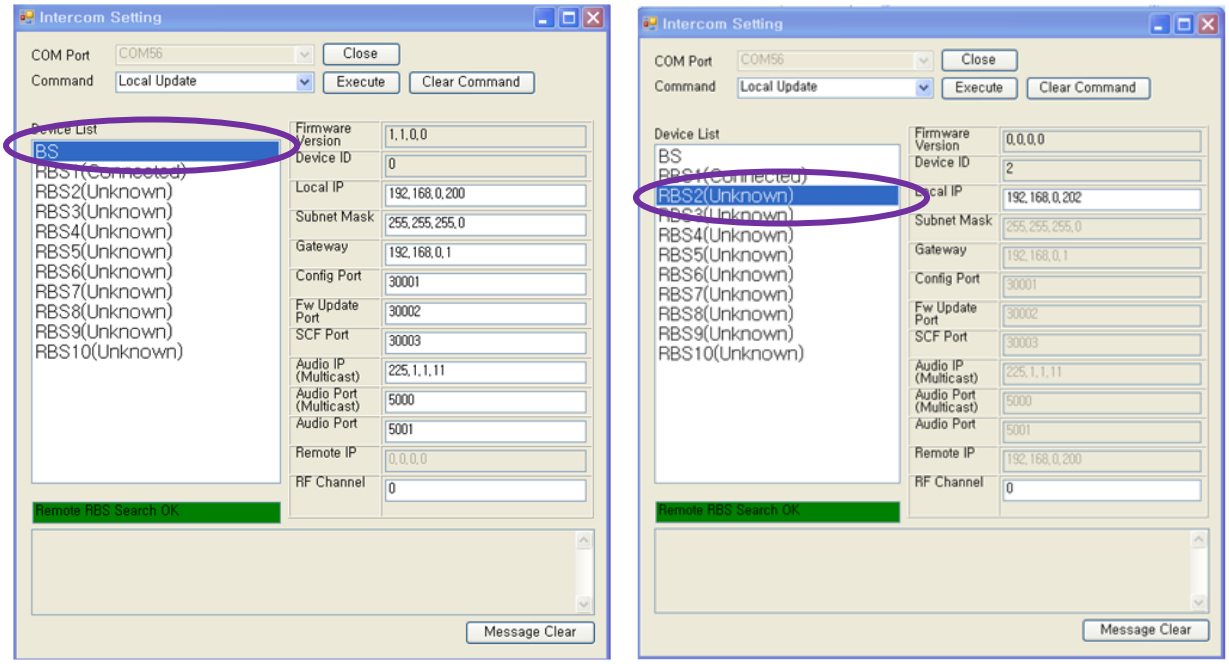



Figure 5-16. Network information display

### 5) NETWORK INFORMATION SET UP OR UPDATE FOR BASE STATION

In order to update BS's network information, select 'BS' from the 'Device List' and edit the value as required. Select 'Local Update' from the 'Command' selection drop down menu and click 'Execute' button to complete the update. As updating the BS network information, back to back RBS network information will be updated accordingly.
In order to update RBS's network information being set up at the BS, select the desired RBS for update from the 'Device List' and edit information. Then, select 'Local Update' from the 'Command' selection drop down menu and click 'Execute' button to save as shown from the Figure 5-17.

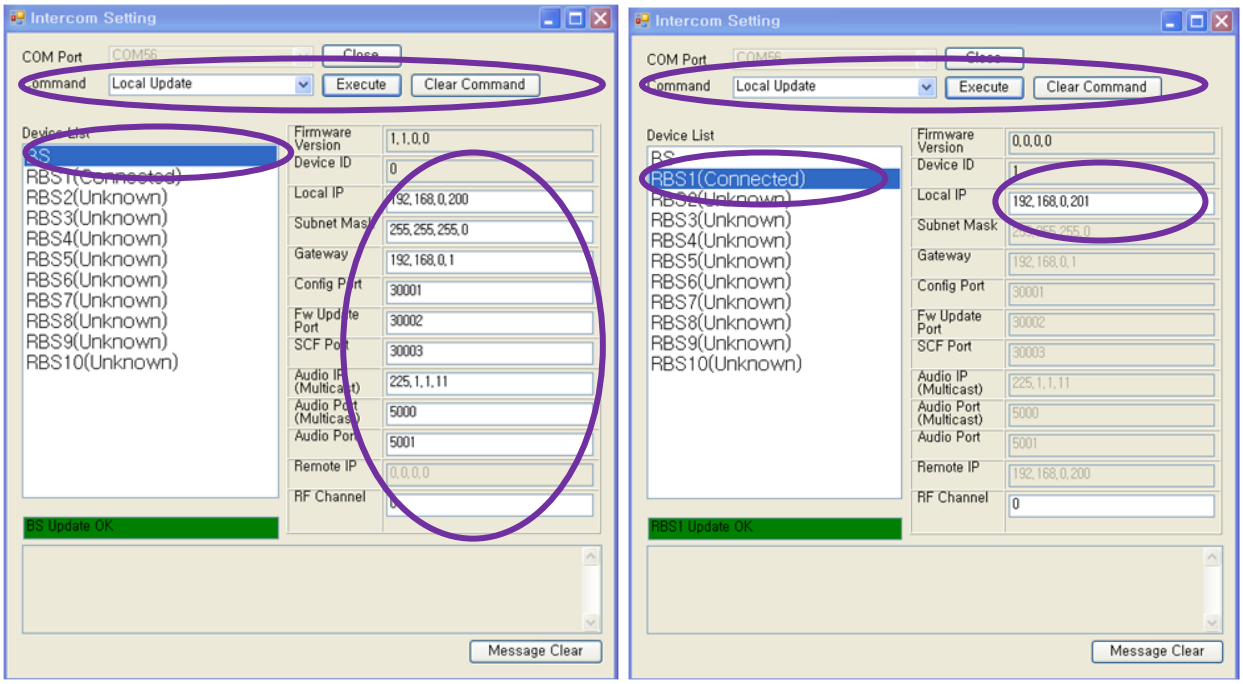



Figure 5-17. Local network information update for BS

In order to update the network information for RBS end, you may implement RBS pairing up process following the **Step 2** below.

All the log data of updated information will be saved in the same directory of 'LXsetting.exe' as 'LXsetting.txt', if the updates are done properly. Click 'Close' button to close the 'COM Port' and configuration tool program.

**NOTE:** In order to update the network information for RBS which is already in paired mode, you may implement either RBS pairing up process again or process it in this program with 'Remote RBS Update' command as following instruction.

All the devices including the applicable RBS for update should be connected to perform this process.

### NETWORK INFORMATION UPDATE FOR REMOTE STATION WHICH IS IN PAIRED MODE

Select the desired RBS for update from the 'Device List' and select 'Remote RBS Update' from the 'Command' selection drop down menu. Edit the network information and click 'Execute' button to save the update as shown from the Figure 5-18. Reboot all devices after updates.

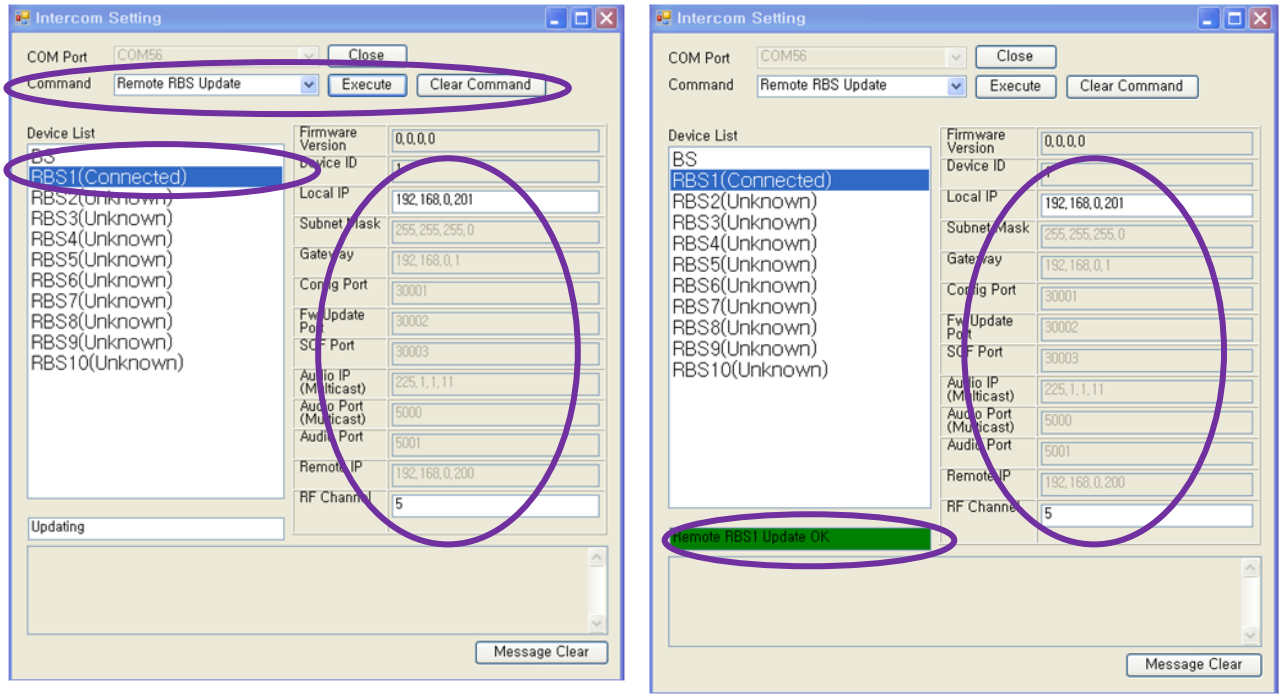



Figure 5-18. Network information update for RBS which is in paired mode

**NOTE 1:** After executing the configuration program, reboot the Base Station.

**NOE 2:** In case updating the Remote Station setup information through network

- After updating the setup information of the Base Station and Remote Sation which are stored in the Base Station ('Local BS Update'), Network update ('Remote RBS Update') should be done.
- If the update is not done for the Local BS, only the changed information of the Remote Station will be updated and previous information will be left in the Base Station
- No need to reboot the Remote Station.

**NOTE 3:** Confirm the Network setup values

When connecting into the non-exlusive exisiting network at the customer site, assigned IP and port information of the Base Station and Remote Station should be set correct.

**Step 2:** Paring up the Remote Station with Base Station

Once the IP network information setting is completed, disconnect the PC from Base Station and reboot the Base Station. For pairing up process, the Remote Station should be connected direct to the Base Station through standard STP LAN cable. Implement paring up process for each of the Remote Station one by one.

### 1) REMOTE STATION SET UP

Put two enclosed antennas into the antenna connectors (#1 and #2) on the top panel of the Remote Station. Turn the sleeve on each of the antenna connectors clockwise to tighten them and ensure that the antennas are connected firmly.

**NOTE:** When attaching the antennas directly to the top panel of the Remote Station, the Remote Station should be away from any metal obstructions, walls and electronic equipments that can create radio interference. When actually installed at site it is highly recommended to place the antenna as high as possible in the center of the coverage and away from obstructions.

### 2) WIRE REMOTE STATION WITH BASE STATION

Put the STP cable into the Base station's LAN RJ-45 Connector, and the other side into the Remote Station's LAN RJ-45 Connector (#5) as shown in Figure 5-11. For pairing, single Remote Station o be paired up should be connected at once.

### 3) SUPPLY POWER TO THE REMOTE STATION

- When you use the wall-adapter power supply:
  Plug the DC cable from the enclosed wall-adapter power supply into the 12VDC POWER connector (#7) on the bottom of the Remote Station. Plug the large female connector at the end of the AC power cord into the power supply and plug the other end of the AC power cord into a standard wall outlet.
- When you use the network switching device which has the PoE function:
  Connect STP cable to LAN Connector (#5) of Remote Station and connect the other side to network switching device which has the PoE function.

Upon the power supply, the green light should go on.

### 4) IMPLEMENT THE PARING PROCESS

After the BS is booted with the initial screen shown up, wait approx 4 minutes to start the RBS pairing.
On the MAIN menu of the Base Station, move to and select “RBS”. The RBS menu appears as shown in Figure 5-19. Move to the applicable Remote Station number for paring up by pressing LEFT or RIGHT and press SET then, the corresponding pairing icon, ( ) in the next row of the applicable Remote Station number is changed to ( ), indicating the paring is being processed. If paring processing is completed successfully, ( ) icon is displayed and if failed, ( ) is displayed. Repeat the same process one by one for additional Remote Stations.
When the paring processing is completed between Base Station and Remote Station, the RBS LINK light on the front panel of the Base Station will go on and the RBS Active light will be blinking when there are data transmissions.
Reboot all the Remote Stations once the pairings for the Remote Stations to be in use are all done. And then reboot the Base Station with the toggle power switch.


Figure 5-19. RBS menu

**NOTE 1**

The RBS LINK light on the Base Station will go on if there is more than one Remote Station linked in.

**NOTE 2**

The link status of the multiple Remote Stations can be monitored in the RBS menu as shown in the Figure 5-19. When the Remote Station is linked in, “O” is displayed and not linked, “X” will be displayed.

**NOTE 3**

During the pairing process, all the connections for communications will temporarily halted.

**Step 3**: Wire the Base Station with Remote Stations for actual operation as shown from the Figure 5-20.

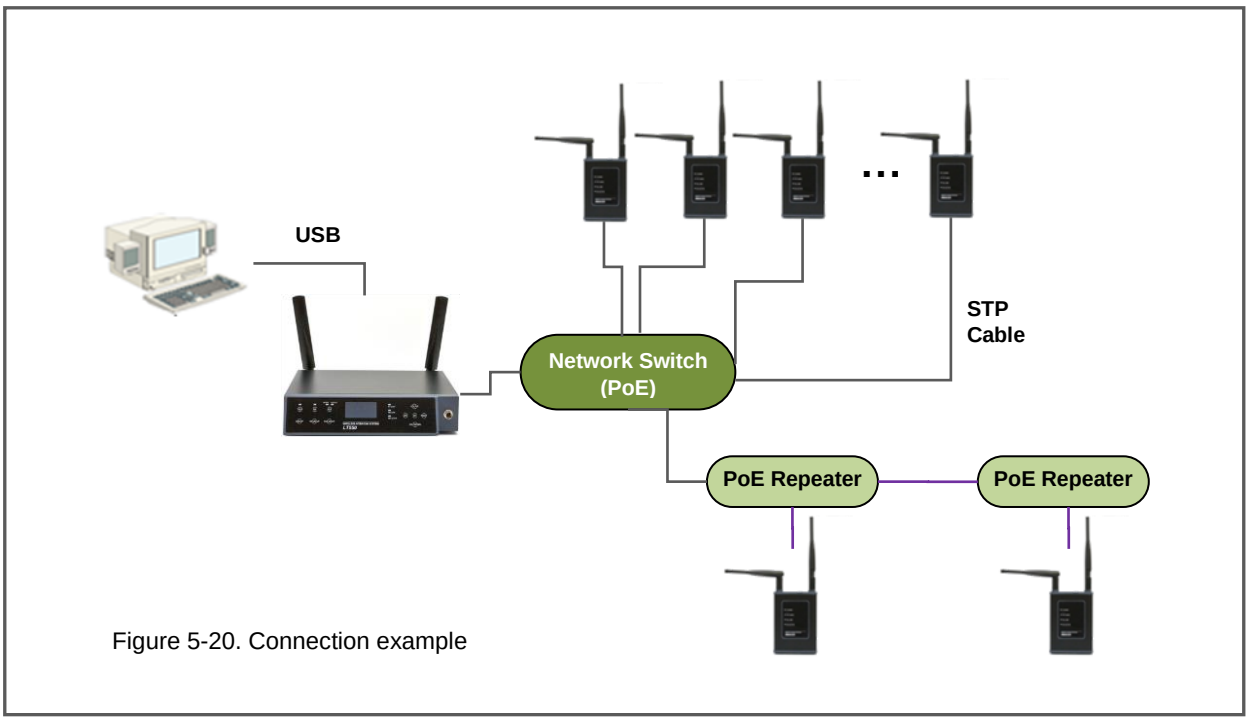



Figure 5-20. Connection example

Above is an example of the basic system configuration. Since the connection between the Remote Station and Base Station follows the standard LAN network configuration method, the system can be configured with full flexibility with PoE repeaters as well as network switches. Also, the coverage can be expanded by adapting daisy chain connection, fiber optic cable, wireless bridge and etc.

**NOTE:** Not using dedicated exclusive network between the Base Station and the Remote Stations, there could possibly be delays due to network traffic. When there are audio breakups due to the delays, it is highly recommended to compose a dedicated exclusive network. 'Dedicated Network' means the LAN network is used only for the LaON Base Station and Remote Stations.

#### STATUS LIGHTS ON THE FRONT PANEL OF THE REMOTE STATION

**RF ALERT light**

When there are audio breakups seriously, RF ALERT light will go on.

**BS LINK light**

When the Remote Station is connected to the Base Station, BS LINK light will go on.

**BS ACTIVE light**

When the Remote Station exchanges data with the Base Station, BS ACTIVE light will be flashing.

**Step 4:** Perform the coverage test

Once the Remote Station is located at a space, you can test the coverage to find out optimal location of the Remote Stations.

#### TESTING COVERAGE AREAS

### Checking Received Signal Strength Indication Level

Once the Base Station and Remote Stations are properly connected and the pairing is done, turn on the Belt Pack power and check out within the coverage area while walking around the Base Station or Remote Station. While talking and moving around, check audio breakups and Received Signal Strength Indication ('RSSI')(**'A'**) level on the Belt Pack's NORMAL menu, as shown in Figure 5-21:


A. RSSI level

B. Base Station or Remote Station that the Belt Pack is being connected ('BS', 'R1', 'R2', 'R3,…… 'RA')

Figure 5-21. Belt Pack's NORMAL Menu

If RSSI Graphic bar is less than one and audio breakups start, that is the limit of coverage zone.

### Mapping coverage zones

Draw a map of the coverage zone for the antenna of the Base Station and Remote Station as shown in Figure 5-22: While repeating this process, see if the Base Station and Remote Station cover each area enough. If not, add the required number of additional Remote Stations. In order to secure enough overlapping area, locate the Remote Station like a coverage zone A and B creating enough overlapping area and set the 'Hands off Sensitivity' level as 'High' or 'Mid' on the menu screen of the Belt Pack which will make the roaming quickly. In normal case, locating the Remote Stations like the coverage zone A, C & D where the Belt Pack communication is required would be feasible.

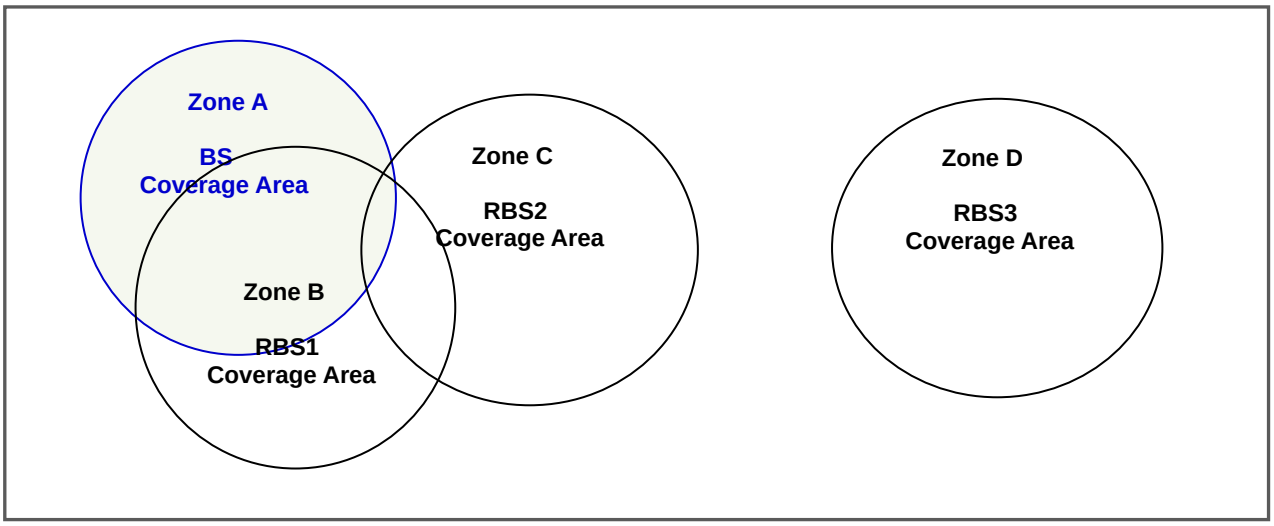



Figure 5-22. Mapping coverage zones

### Relocation of the Base Station and Remote Station

In a certain environment, audio breakups could occur even though high signal strength is observed.

There might be two reasons as followings:

- A Belt Pack is within 6.5 feet (2 meters) from the antenna that of the Base Station or the Remote Station.
- RF signals reflection could occur in an environment where there are a number of reflective surfaces, such as metal obstructions, walls or other large structures and electronic equipments that can create radio interference.

You can relocate the Base Station or Remote Station antenna to avoid reflective surface. It is highly recommended to relocate the antenna **as high as possible in the center of the coverage** and away from obstructions.

### Testing antenna Handoff

After testing the coverage zones of the antennas that of the Base Station and Remote Stations, you should continue to test handoff between the coverage zones. When your Belt Pack is out of coverage while walking through coverage zones, the Belt Pack scans to find another antenna of the Base Station or Remote Station and automatically roam to the antenna with the stronger signals. When the automatic roaming is performed smooth while walking through Zone A and Zone C, the distance between the antenna locations of the Base Station and Remote Station maybe ideal. In order to confirm the Belt Pack is connected to which of the Base Station or Remote Stations, see Belt Pack's NORMAL menu, ('**B'**), as shown in Figure 5-21. If the Belt Pack is connected to the Base Station, "BS" will appear. If a Belt Pack is connected to the Remote Station, a Remote Station's ID number "R1" through "R5" will appear. You can also monitor the Belt Pack status on the Base Station's MONITOR menu, as shown in Figure 5-23. The MONITOR menu shows each Belt Pack is connected to which of the Remote Stations or the Base Stations.

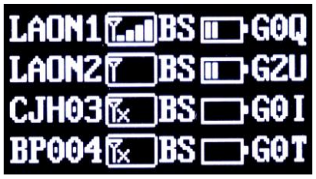



Figure 5-23. MONITOR menu on Base Station


Figure 5-24. HANDSOFF SENSITIVITY level selection menu on Belt Pack

In case wide overlapping area is created like between the coverage zone A, B and C Zone A, Zone B, Zone C, set the 'Hands off Sensitivity' level as 'High' or 'Mid' on the menu screen of the Belt Pack which will make the handoff quickly.

When using the Belt Pack in an independent area like the coverage zone D, set the 'Hands off Sensitivity' level as 'Low' on the menu screen of the Belt Pack then the communication will be disconnected only when the Belt Pack is totally out of the coverage.

The user can manually execute the hand-off by a 'double click' of the power button on the front panel of the Belt Pack. Expect a beep sound upon the new link to other Base Station or Remote Stations.

**NOTE:**
When manually roaming, do not press PWR button longer than 2 second otherwise, the Belt Pack will be turned off.

In case of doing a manual roaming operation, depending on the site environment and condition of installation - for an instant, when moving from the coverage zone C to D, the Belt Pack could be totally out of coverage with a voice message from headset with the red LED blinking and then roamed to another coverage zone with the green LED on.

See the " **BS750 BASE STATION OPERATION**" in SECTION 4 for the details about MONITOR menu.

## 5GHz UNII FREQUENCY BAND

### 1) SELECT RF CH Menu


Figure 5-25 'BS' menu


Figure 5-26 'SELECT RF CH' menu

On 5GHz UNII band, there is a separate definition and guideline for frequency channels to be used in indoor environments. On LT750 Expert system, select 'Indoor' in the SELECT RF CH Menu if you use the system in any indoor environments. When using the system at any outdoor environments, 'OUTdoor' should mandatorily be selected. Refer to the Table 5-1 below for usable frequencies of indoor and outdoor in each region.

**NOTE:** Upon the change of the setting of indoor or outdoor, the BS750 Base Station will automatically be rebooted and set the applicable frequencies as selected.

### 2) FREQUENCY MONITORING Menu


Figure 5-27 FREQ-MONITOR menu

In this menu, the frequency channels taken by the Base Station and multiple Remote Stations can be monitored. The channel IDs refer to below table 5-1. If any devices have taken a duplicated or neighboring frequency, reboot the Base Station with the power toggle switch on the Base Station which enables The Base Stations and Remote Stations scan the best available channels again.

**NOTE:** The indication '00' means, the device is not in operation.

**FREQUENCY BAND**

The following table 5-1. lists the frequencies that can be used in 5GHz UNII band. The ID of frequency bands currently being used will be shown on the BS menu. The LT750 system which operates in 5GHz is approved for license free use in most countries. However, some countries may restrict the use of some band or RF spectrum operations. Therefore, it is your responsibility to find out whether the LT750 system is permitted in your country or not.

**NOTE 1**: In FREQ-MONITOR menu screen, each ID number stands for each frequency band as shown in the Table 5-1.
**NOTE 2**: As 'Indoor' option is selected in SELECT RF CH menu under BS menu, the system can use indoor frequencies and the new frequency ID number will be applied and indicated in FREQ-MONITOR menu screen. With any Base Station that does not provide the option for Indoor frequency selection, it means the applicable Base Station is not able to use indoor frequencies and the old frequency ID number will be applied and indicated in FREQ-MONITOR menu screen.

| ID | WiFi Channel | Frequency | Band width | Korea | Australia, New Zealand, | EU, Japan, Singapore | US | China | Taiwan | Israel |
|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 32 | 5160MHz | 20MHz | X | X | X | X | X | X | X |
| 02 | 36 | 5180MHz | 20MHz | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor |
| 03 | 40 | 5200MHz | 20MHz | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor |
| 04 | 44 | 5220MHz | 20MHz | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor |
| 05 | 48 | 5240MHz | 20MHz | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor | Indoor |
| 06 | 52 | 5260MHz | 20MHz | O | Indoor | Indoor | O | O | Indoor | Indoor |
| 07 | 56 | 5280MHz | 20MHz | O | Indoor | Indoor | O | O | Indoor | Indoor |
| 08 | 60 | 5300MHz | 20MHz | O | Indoor | Indoor | O | O | Indoor | Indoor |
| 09 | 64 | 5320MHz | 20MHz | O | Indoor | Indoor | O | O | Indoor | Indoor |
| 10 | 68 | 5340MHz | 20MHz | X | X | X | X | X | X | X |
| 11 | 96 | 5480MHz | 20MHz | X | X | X | X | X | X | X |
| 12 | 100 | 5500MHz | 20MHz | O | O | O | O | X | O | X |
| 13 | 104 | 5520MHz | 20MHz | O | O | O | O | X | O | X |
| 14 | 108 | 5540MHz | 20MHz | O | O | O | O | X | O | X |
| 15 | 112 | 5560MHz | 20MHz | O | O | O | O | X | O | X |
| 16 | 116 | 5580MHz | 20MHz | O | O | O | O | X | O | X |
| 17 | 120 | 5600MHz | 20MHz | O | O | O | O | X | O | X |
| 18 | 124 | 5620MHz | 20MHz | O | O | O | O | X | O | X |
| 19 | 128 | 5640MHz | 20MHz | O | O | O | O | X | O | X |
| 20 | 132 | 5660MHz | 20MHz | O | O | O | O | X | O | X |
| 21 | 136 | 5680MHz | 20MHz | O | O | O | O | X | O | X |
| 22 | 140 | 5700MHz | 20MHz | O | O | O | O | X | O | X |
| 23 | 149 | 5745MHz | 20MHz | O | X | X | O | O | O | X |
| 24 | 153 | 5765MHz | 20MHz | O | X | X | O | O | O | X |
| 25 | 157 | 5785MHz | 20MHz | O | X | X | O | O | O | X |
| 26 | 161 | 5805MHz | 20MHz | O | X | X | O | O | O | X |
| 27 | 165 | 5825MHz | 20MHz | O | X | X | O | O | O | X |
| 28 | 169 | 5845MHz | 20MHz | X | X | X | X | X | X | X |
| 29 | 173 | 5865MHz | 20MHz | X | X | X | X | X | X | X |

Table 5-1. Typical Radio frequency (RF) bands
**Indoor:** Radio frequencies that can only be used indoors. Outdoor frequencies are also used when the Indoor is selected.

### 3) TX OFF of the Base Station


Figure 5-28. TX OFF menu

With touching HF/PTT key when the BS menu of the Base Station is displayed, TX OFF menu will appear. Select TX OFF if the Base Station does not need to transmit and receive wireless signals or if it is required to weaken the Base Station signal to avoid frequency conflicts.

**NOTE 1:** In order to activate the TX ON mode again, reboot the Base Station
**NOTE 2:** Belt Pack pairing is not available in TX OFF mode. Change the mode to TX ON for the Belt Pack pairing.

#### 4) PRECAUTIONS to install multiple Remote Stations

Upon installation of multiple Remote Stations, fully aware of the followings to feasibly install and use the system with the full use of automatic avoidance function against any possible frequency interference.

- **Turn on the Remote Station and Base Station in designated order as below.**
  - Firstly, supply the power source to all Remote Station in connection. When using a PoE switch, supply the power to the PoE switch or if it is already done, connect the LAN cable between the Remote Station and the PoE Switch through a PoE Port.
  - Then, turn on the Base Station.
  - Assuming that ten (10) Remote Stations are installed at the site. After the NORMAL menu screen is displayed on the Base Station, Base Station starts to scan the best available frequency channels one and after sequentially for all Remote Stations from R1 to RA (R10). The power LED of the Remote Station that is in the scan mode with the Base Station will be changed to RED on. Once the scanning process is completed, 'BS LINK' LED will be on in green indicating the link between the Base Station and Remote Station is done. At the Base Station end, the Remote Station link status can be confirmed from the RBS menu. For the scanning process of the ten (10) Remote Stations, 200 seconds – 20 seconds per Remote Station) will take.

    **NOTE:** If the Base Station is turned on before the Remote Station, it is impossible for Remote Stations to receive correct data regarding the sequential power on and automatic frequency avoidance which may cause inefficient frequency channel allocations. And Remote Stations may miss to receive the correct frequency avoidance information in regards of other Remote Stations or Base Station and take the duplicated frequency. If it is the case, while the Remote Stations are turned on, reboot the Base Station only with the power toggle switch and make the system rescan properly.

- **Install the Remote Stations from R1, R2… R10(RA) sequentially from the nearest location from the Base Station.**
  Locate the RBS1 at the nearest place from the Base Station, RBS2 at the next nearest place, and RBS10 the farthest place as shown from the figure 5-29. By following this rule, the coverage zone A and G where no interferences at all between, can use the same frequency channel which is the way to fully enjoy the usable frequency channels with efficiency.

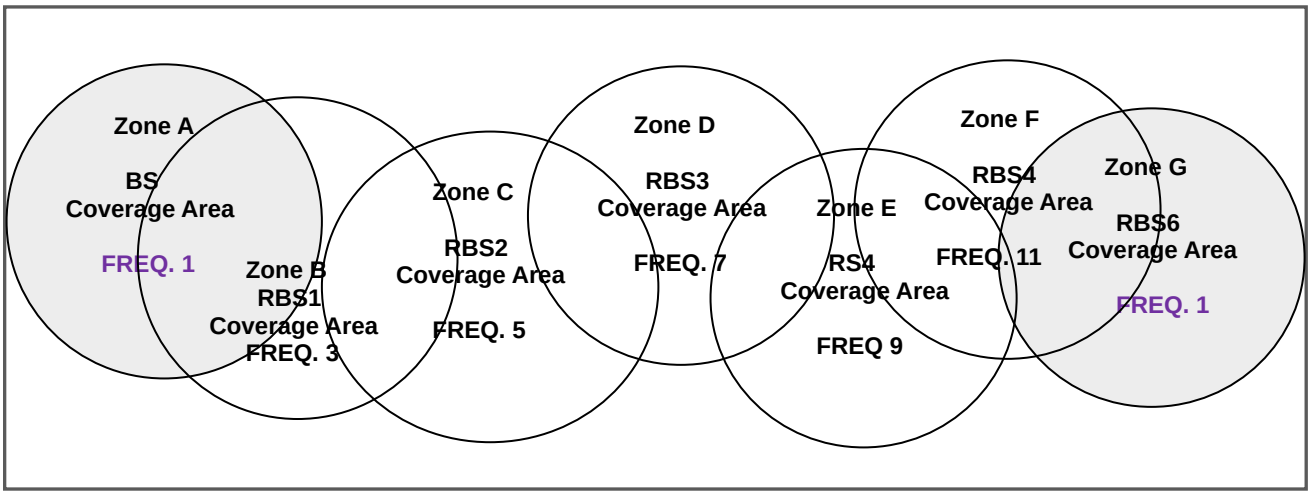



Figure 5-29. Configuration example with overlapping of frequencies

- **Precautions when pairing between the Belt Pack and Remote Station**
  Do not make pairing for any Belt Packs or Remote Stations for 200 seconds after the NORMAL menu is displayed on the Base Station

  - If any Belt Pack pairing is tried during this scanning process ;

  Due to dramatic down of the TX power of the Base Station, there could possibly an issue that Remote Stations are not able to scan frequency channels and in the result, they may occupy a duplicated frequency channel.

  - If any Remote Station pairing is tried during this scanning process ;

  Pairing will not be completed properly.

# SECTION 6: FAQS AND TROUBLESHOOTING

## BASE STATION

### Regarding limited RF coverage

When there are audio breakups within the coverage

- Ensure that the antennas are properly connected and tightened on the Base Station.
- Confirm the antennas are positioned vertically and be folded completely as 90 degree.
- Check around the Base Station's line-of-sight and ensure that there are no physical obstructions around. While attaching the antennas directly to the rear panel of the Base Station, the Base Station should be away from any metal obstructions, walls, and electronic equipments that can create radio interference. If possible, the antenna should be located **as high as possible and away from obstructions and select location to the center of the coverage**.

When Remote Station or Stations are connected

- Monitor if there is any duplicated frequency channel within the same range with LaON provided software program.
  If any, reboot the Base Station with the power toggle switch on the Base Station while the Remote Station is turned on, or reboot the applicable Remote Station only.

### TALK light on the Base Station does not come on

- Make sure that the power cords are properly plugged to the Base Station and standard wall outlet.
- Confirm that the POWER switch on the rear panel of the Base Station is turned on.

### No audio data TX/RX between a Base Station and an external hardwired intercom system

- Make sure that the cables are firmly connected and the 4-wire or AUX intercom is on.
- Confirm that the Base Station and 4-wire or AUX are in the same Communication Group.
- Make sure that the headset is firmly connected to the Belt Pack or the Base Station.

# BELT PACK

### Belt Pack TALK light does not turn on green and “out of coverage” is heard in the headset.

- Confirm that the POWER switch is turned on and ensure that the battery is fully charged.
- Reboot the Belt Pack and Base Station again.
- Check out the coverage. You may be too far from the Base Station or the Remote Station. The coverage can be varied depending on the site environments and basically the ‘line-of-sight’ should be secured between the Base Station and Belt Pack, or Remote Station and Belt Pack.

### Communication is unable with single or multiple group channels

- Confirm TALK button and light of the Base Station and Belt Pack
- Check out if the correct communication group channel is selected
- In case in ‘TWO GROUPS’ mode, communication is available with the two (2) groups only

### Communication or pairing is unable between the Base Station and Belt Pack

- Confirm with the power toggle switch of the Base Station if the power is on
- Make sure the two (2) antennas are properly and firmly connected to the Base Station
- Make sure the headset is firmly connected to the Belt Pack
- Check out if the pairing is made between the Base Station and Belt Pack
- Check if the Base Station is TX ON mode in the Base Station menu screen

### Audio breakups in the coverage

If the Belt Pack is near the Base Station or Remote Station however the RSSI level is low

- In case multiple Remote Stations and Base Stations are existing in the range
  Confirm the Belt Pack’s link status in the NORMAL menu of the Belt Pack if it is connected to the nearest Base Station or Remote Station. If it is connected to a Base Station or Remote Station in remote area, try to rescan the Base Station or Remote Station with the stronger signal by a double click of the power button of the Belt Pack. And set the hands off sensitivity as ‘High’ or ‘Mid’ in HANDSOFF SENSITIVITY menu of the Belt Pack.
- Monitor if there is any duplicated frequency channel within the same range with LaON provided software program.
  If any, reboot the Base Station with the power toggle switch on the Base Station while the Remote Station is turned on, or reboot the applicable Remote Station only.
- In case of low battery
  If the battery level is low, TALK light of the Belt Pack is changed to red. In case of low battery, it may cause a malfunction. Replace the battery immediately with a fully charged battery or turn off the Belt Pack, or unlatch the Belt Pack from the UNLATCH menu of the Base Station. In case of low battery, the TX and power is automatically off however continuous using or pressing TALK button of the Belt Pack and etc may cause bad affection to the wireless communications for a while.

# REMOTE STATION

## Limited RF coverage

When there are audio breakups within the coverage

- Ensure that the antennas are properly connected and tightened on the Remote Station
- Confirm the antennas are positioned horizontally not being folded
- Reflected RF signals could occur in an environment with a number of reflective surfaces, such as metal obstructions, walls or other large structures, and electronic equipments that can create radio interference. You can relocate the Remote Station antenna to avoid the reflective surface. If possible, you can adjust the antenna as high as possible and away from any reflective obstructions and relocate them to the center of the coverage.
- Monitor if there is any duplicated frequency channel within the same range with LaON provided software program.
  If any, reboot the Base Station with the power toggle switch on the Base Station while the Remote Station is turned on, or reboot the applicable Remote Station only.

## The communication with Belt Pack is unable within the Remote Station's coverage

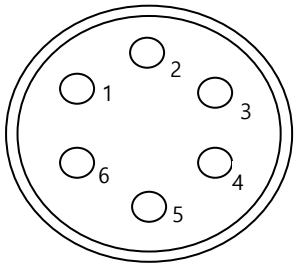
- Ensure that the antennas are properly connected and tightened on the Remote Station
- Check out the RBS LINK light on the front panel of the Base Station and BS LINK light on the front panel of the Remote Station are on. Make sure that you have paired up a Remote Station with the appropriate Base Station.
- If LINK lights are not on, check the Base Station's RJ-45 connector and Remote Station's RJ-45 connector are properly wired to the network switch. Ensure that the network switch is working well.
- If the power light on the front panel of the Remote Station is off; check the power cord is firmly connected or the PoE network switch is working well.

# SECTION 7: APPENDIX

## FACTORY DEFAULT SETTING AND RECOMMENDATION

| Item | Base Station default | Belt Pack default |
|---|---|---|
| Microphone gain | 5 | 5 |
| Speaker volume | 8 | 8 |
| Side tone volume | 8 | 8 |
| Communication Group Allocation (SET GROUP under BS menu) | 1,2,3,4,5 (All) | 1,2,3,4,5 (All) |
| 4-Wire Communication Group Allocation ( SET GROUP under BS menu) | 1,2,3,4,5 | 1,2,3,4,5 |
| AUX Communication Group Allocation (SET GROUP under BP menu) | 1,2,3,4,5 | 1,2,3,4,5 |
| Communication Group Selection | 1 | 1 |
| TALK button mode | Hands free On mode (Latched) | Hands free On mode (Latched) |
| Hands free mode | On | On |
| Auxiliary In/Out connection On/Off | Off | NA |
| Auxiliary In/Out volume | 8 | NA |
| 4-Wire connection On/Off | Off | NA |
| 4-Wire send/receive level | 8 | NA |
| Hands off Sensitivity | NA | MID |
| Low Cut | NA | -6db |
| Mode Selection | NA | BP |

## 6-PIN HEADSET CABLE CONNECTOR




**1**. MIC VCC +2V (For ECM mic.)

**2.** MIC – (GND)

**3**. MIC + (For Dynamic mic.)

**4**. Push-To-Talk (PTT)

**5**. RECEIVER -

**6**. RECEIVER +

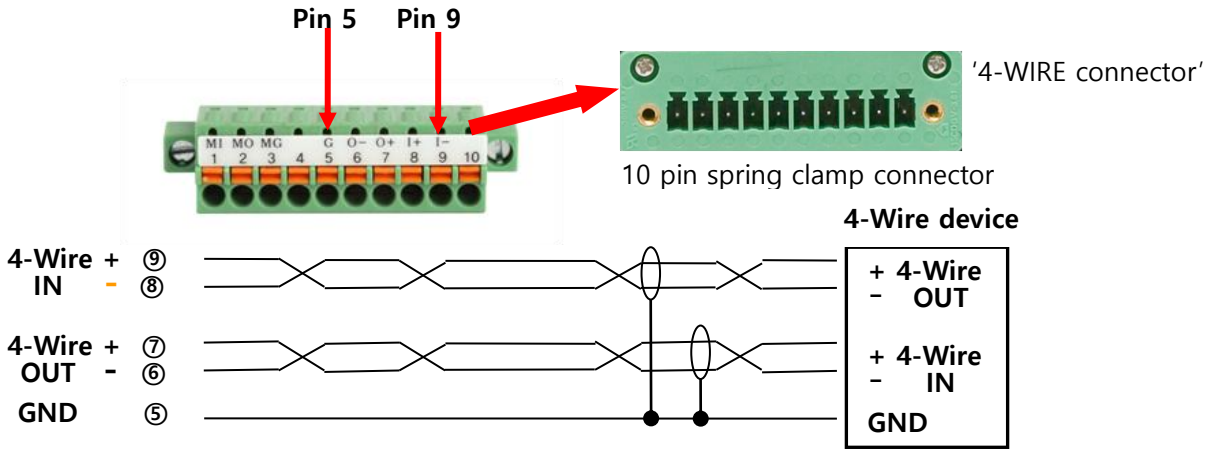
# 10 PIN SPRING CLAMP CONNECTOR

To plug a cable wire into the 10-pin spring clamp connector, push and hold an orange-colored wire-release latch on the top of the connector, then put a cable wire into its relevant pin and release a wire-release latch.

| Pin | Function | descriptions |
|---|---|---|
| 1 | Input+ / Output+ | |
| 2 | Input- / Output- | |
| 3 | NC(No Connection) | |
| 4 | NC | |
| 5 | GND | 4-wire |
| 6 | 4-wire output - | 4-wire |
| 7 | 4-wire output + | 4-wire |
| 8 | 4-wire input - | 4-wire |
| 9 | 4-wire input + | 4-wire |
| 10 | NC | |

Pin assignments for the '4-WIRE & Multiple Base Station connector'

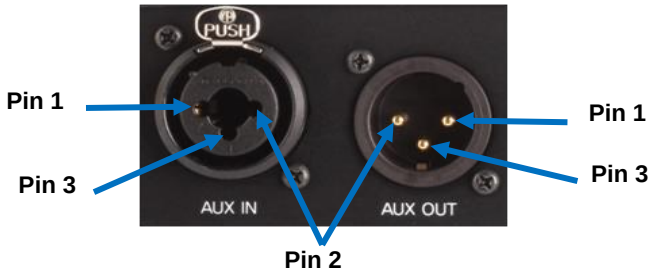
**4-Wire**




# AUXILIARY CONNECTOR

When you use auxiliary device such as intercom or other audio sources, put its output cable connector into the AUX IN connector and its input cable connector into the AUX OUT connector. The AUX OUT and AUX IN connectors are 3-pin XLR type for balanced +20dBV (10V) maximum level.

Pin 1 : Ground
Pin 2 : Audio +
Pin 3 : Audio –



# SECTION 8: TECHNICAL SPECFICATIONS

## LT750 SYSTEM SPECIFICATIONS

## BS750 BASE STATION

| | |
|---|---|
| RF Frequency: | UNII band: 5.16GHz~5.34GHz, 5.48GHz~5.70GHz, 5.745GHz~5.865GHz |
| Antenna Connector Type: | External 1/2 -wave dipole, SMA connector |
| | |
| **Transmitter** | |
| Type: | Frequency/Time Diversity |
| Transmit Power: | 17dBm(50mW) @antenna port |
| Modulation Type: | QPSK |
| Frequency Stability: | ± 2ppm |
| | |
| **Receiver** | |
| Type: | Antenna/Frequency/Time Diversity |
| RF Sensitivity: | -85dBm for 5 BER |
| Frequency Stability: | ± 2ppm |
| | |
| Belt Packs per Base station: | Inherently, 128 Belt Packs can be paired up, and ten (10) Belt Packs operating in full-duplex (talk/listen) at the same time while eleven (11) full-duplex channels are provided including the Base Station. |
| Audio Communication Group: | Five (5) |
| Audio Frequency Response: | 200 Hz to 7.2 kHz |
| Headset output: | 250mW into 32 Ohm |
| Microphone Type: | Dynamic or Electret |
| Headset Connector: | 6-pin mini-DIN male |
| Latency: | One-way system latency less than 23ms direct |
| Communication Security: | 256 bits key AES level 3 Encryption |
| Auxiliary Input: | XLR-3F/1/4"(6:35mm) combo jack, 600Ω balanced, level adjustable |
| Auxiliary output: | XLR-3M, 600Ω balanced, level adjustable |
| 8Ω Speaker Output: | 1W into 8Ω |
| 4-Wire I/O: | 10-Pin Spring Clamp connector, 600Ω balanced, level adjustable |
| LAN RJ-45 Connector: | One (STP standard wiring), Up to ten (10) Remote Station can be connected via LAN. |
| USB Connector : | Monitoring and Program port |
| Front Panel Display: | OLED 128 x 64 Resolutions |
| Front Panel Button: | Touch buttons |
| | |
| Power Input: | 100-240VAC, 47-63Hz, 11.4-12.6VDC |
| Operating Temperature: | 0°C to 50°C (32°F to 122°F) |
| Dimensions: | 8.26W x 6.37L x 1.73H inch (21W x 16.2L x 4.4H cm),<br>Without Connector on the Rear panel and foot. |
| Weight: | 2.4118 lbs (1094g) |

# BP750 BELT PACK

| | |
|---|---|
| RF Frequency: | UNII band: 5.16GHz~5.34GHz, 5.48GHz~5.70GHz, 5.745GHz~5.865GHz |
| Antenna Connector Type: | Internal |
| | |
| **Transmitter** | |
| Type: | Antenna/Frequency/Time Diversity |
| Transmit Power: | 17dBm(50mW) @antenna port |
| Modulation Type: | QPSK |
| Frequency Stability: | ± 2ppm |
| | |
| **Receiver** | |
| Type: | Antenna/Frequency/Time Diversity |
| RF Sensitivity: | -85dBm for 5 BER |
| Frequency Stability: | ± 2ppm |
| | |
| Master Belt Pack Function: | Inherently, 128 Belt Packs can be paired up, and four (4) Belt Packs operating in full-duplex (talk/listen) at the same time while five (5) full-duplex channel is provided including the Master Belt Pack. Single communication group channel is assigned to the Master Belt Pack. |
| Audio Communication Group: | Five (5) |
| Audio Frequency Response: | 200 Hz to 7.2 kHz |
| Headset output: | 250mW into 32 Ohm |
| Microphone Type: | Dynamic or Electret |
| Headset Connector: | 6-pin mini-DIN male |
| Latency: | One-way system latency less than 23ms direct |
| Communication Security: | 256 bits key AES level 3 Encryption |
| Display: | OLED 128 x 32 Resolutions |
| Button: | Push buttons |
| | |
| Battery Requirement: | 2.4V 2450mAh Rechargeable NiMH Battery or Two AA size 1.5V alkaline batteries |
| Rechargeable Battery life: | Nine (9) hours in full duplex mode |
| Operating Temperature: | 0°C to 50°C (32°F to 122°F) |
| Dimensions: | 2.89W x 0.92L x 3.83H inch (7.35W x 2.35L x 9.73H cm) without Belt Clip |
| Weight: | 0.445 lbs (202g) with battery / 0.29 lbs (133g) without battery |

# RBS75 REMOTE STATION

| | |
|---|---|
| RF Frequency: | UNII band: 5.16GHz~5.34GHz, 5.48GHz~5.70GHz, 5.745GHz~5.865GHz |
| Antenna Connector Type: | External $^{1}/_{2}$ -wave dipole, SMA connector |
| | |
| **Transmitter** | |
| Type: | Frequency/Time Diversity |
| Transmit Power: | 17dBm(50mW) @antenna port |
| Modulation Type: | QPSK |
| Frequency Stability: | ± 2ppm |
| | |
| **Receiver** | |
| Type: | Antenna/Frequency/Time Diversity |
| RF Sensitivity: | -85dBm for 5 BER |
| Frequency Stability: | ± 2ppm |
| | |
| LAN RJ-45 Connector: | One (STP standard wiring) , Connect to the Base Station via LAN. |
| USB Connector : | Program Port |
| | |
| Power Input: | 100-240VAC, 47-63Hz, 11.4-12.6VDC or PoE from the Network Switch |
| Operating Temperature: | 0°C to 50°C (32°F to 122°F) |
| Dimensions: | 3.46W x 1.47L x 4.80H inch (8.8W x 3.74L x 12.2H cm) without RBS holder kit |
| Weight: | 0.831 lbs (377g) without RBS holder kit |


# Thank you.

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