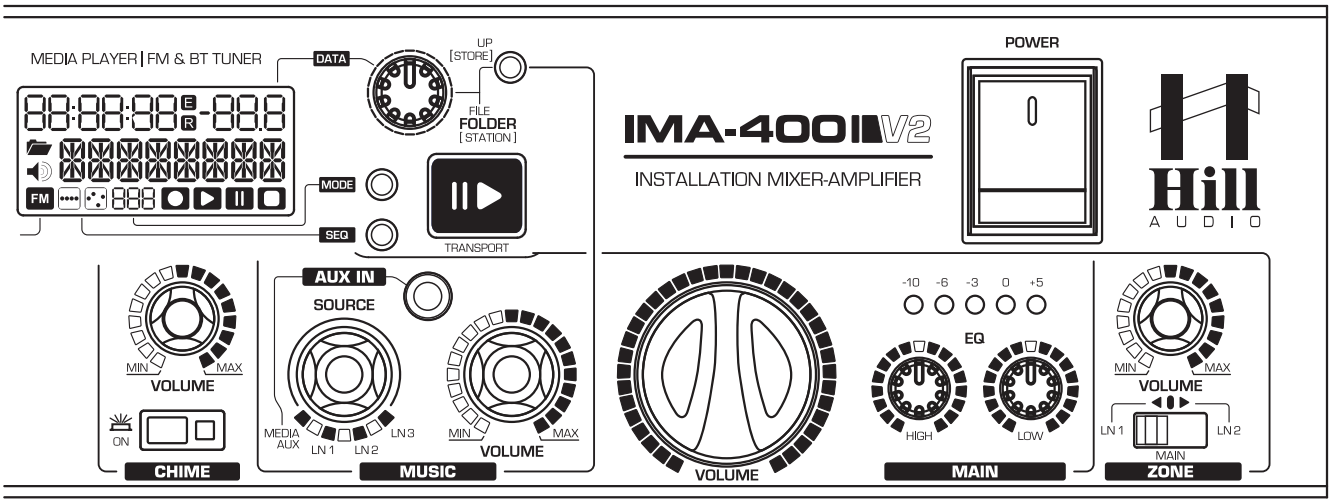
Hill
AUDIO




# USER MANUAL

RevA 06-2017

IMA-400IIV2

INSTALLATION MIXER-AMPLIFIER

## Welcome

Thank you for choosing Hill Audio for your sound system. To make sure that this product meets your expectations and provides long-term, reliable performance, please read and follow this instruction manual carefully.

## Manual Language

| | | |
|---|---|---|
| UK | This user manual is written in English. For other languages, visit | www.hill-audio.com |
| FR | Ce guide est écrit en anglais. Pour les autres langues, visitez: | www.hill-audio.com |
| DE | Diese Anleitung ist in Englisch verfasst. Für andere Sprachen: | www.hill-audio.com |
| ES | Este manual está escrito en Inglés. Para otros idiomas, visite: | www.hill-audio.com |
| PT | Este manual está escrito em Inglês. Para outros idiomas, visite: | www.hill-audio.com |
| IT | Questo manuale è scritto in inglese. Per altre lingue, visitare: | www.hill-audio.com |

## Important safety instructions

- Read these instructions and all markings on the product. Keep these instructions.
- Heed all warnings and instructions, both in this manual and on the product.
- Clean only with a dry cloth. Unplug from AC supply before cleaning.
- Do not use this product near water and avoid any exposure to water.
- Before connecting this product to any AC supply, make sure you check whether the AC mains voltage and frequency match the indication on the product and its packaging.
- Only connect this product to an AC supply with sufficient power handling, protective earth connection, ground-fault (earth-fault) protection and overload protection.
- Disconnect the product from the AC supply during thunderstorms. Also disconnect from the mains supply if the product is not being used for long periods.
- Make sure any heat sink or other cooling surface, or any air convection slot , is exposed sufficiently to free air circulation and is not blocked.
- Do not operate this product in environmental temperatures exceeding 35 degrees Celsius and/or 85% relative humidity.
- Position the product in a safe and stable place for operation, out of reach of unauthorized persons.
- Make sure any cable connections to and from the product are neither subject to potentially destructive mechanical impact nor present any risk of stumbling or other accident risk to people.
- Audio equipment may generate sound pressure levels sufficient to cause permanent hearing damage to persons. Always start up at low volume settings and avoid prolonged exposure to sound pressure levels exceeding 90 dB.
- Do not open this product for service purposes. There are no user-serviceable parts inside. Warranty will be void in any case of unauthorized service by the user or other unauthorized persons.
- Take any precaution required by local law, applicable regulations or good business practice to avoid injury to people or material damage by use of this product.

Explanation of symbols used in this manual and on the product:

**ATTENTION!**
Read manual before installation and operation.

**DANGER!**
Safety hazard.
Risk of injury or death.

**WARNING!**
Hazardous voltage.
Risk of severe or fatal electric shock.

**WARNING!**
Fire hazard.

## Description

The IMA-400V2(B) is a comprehensive combination of a mixer for music and three microphones, a media player with FM Tuner and IR remote control, an optional Bluetooth receiver, a chime player and a stereo low impedance power amplifier for installed sound systems. This comprehensive combination of advanced features makes the IMA-400V2(B) the ideal all-in-one solution for medium sized installed sound systems in commercial and hospitality environments.

## Health advice

This unit produces and absorbs electromagnetic radiation. The strength of radiation and the sensitivity for disturbing interference matches the CE and FCC requirements. A corresponding sign is printed on the backside of the unit. Any change or modification may affect the behavior of the unit concerning electromagnetic radiation and it may not then meet CE requirements. The manufacturer takes no responsibility in this case.

## Functional advice

This unit is immune to the presence of electromagnetic disturbances – both conducted and radiated - up to a certain level. Under peak conditions, the unit is classified to show a “class C” performance criteria and may encounter temporary degradation or loss of function which may need manual help to recover. In such case, disconnect the AC power from the unit and reconnect it again to recover.

## Environmental advice

This unit is built to conform to the ROHS standards and the WEEE directive 2011/65/EU of the European Parliament and of the Council of the European Union. Under these regulations, the product shall not be discarded into regular garbage at the end of its life, but shall be returned to authorized recycling stations.

## Unpacking

Please check that the box contains the following items:

Main parts:
- 1 pc. IMA-400V2(B) main unit
- 1 pc. Mains cable
- 1 pc. FM antenna
- 1 pc. IR remote control
- 1 pc. Micro SD card for chime player (already inserted in main unit)
- 1 pc. Operation manual
- 1 pc. Bluetooth antenna front-mount kit (BT version only)

If any part is missing, please contact your dealer immediately.

## Warning

After unpacking, and before plugging the AC cord in the wall outlet, check whether the AC mains voltage and frequency is compatible with this product (see rear panel of product). Whenever the specified voltage or your AC plug should not match the local conditions, do NOT plug the AC cord into the wall outlet and contact your dealer

## Configuration setup

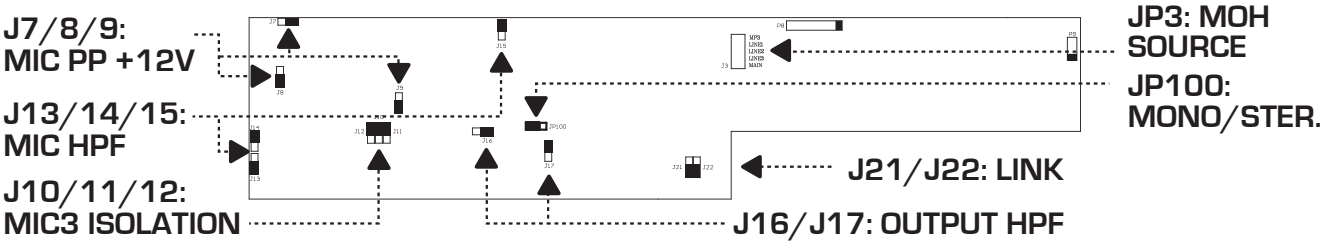
Before using the IMA-400V2(B), it must be configured to match the application. Make sure the unit is unplugged from AC mains and remove the top cover to gain access to the internal elements, then set switches and jumpers and arrange connections as per following instruction.

## Warning

The following chapter contains work on an open unit, with contacts, wires and parts carrying life voltage exposed. Work must be expedited strictly and only when the unit is disconnected (not only switched off) from the AC supply, and all work must be expedited by a qualified technician familiar with necessary safety precautions. Removing the top cover and expediting this work is not permitted for the end user, as indicated by the outside marking "no user-serviceable parts inside - do not open". Contact your dealer to make these settings for you if you do not have the required qualification. The manufacturer takes no liability for damage to health or goods evolving from inobservance.

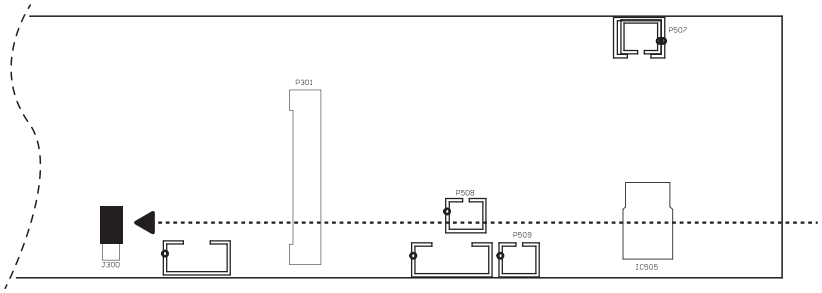
## Internal jumper settings

1. Rear PCB



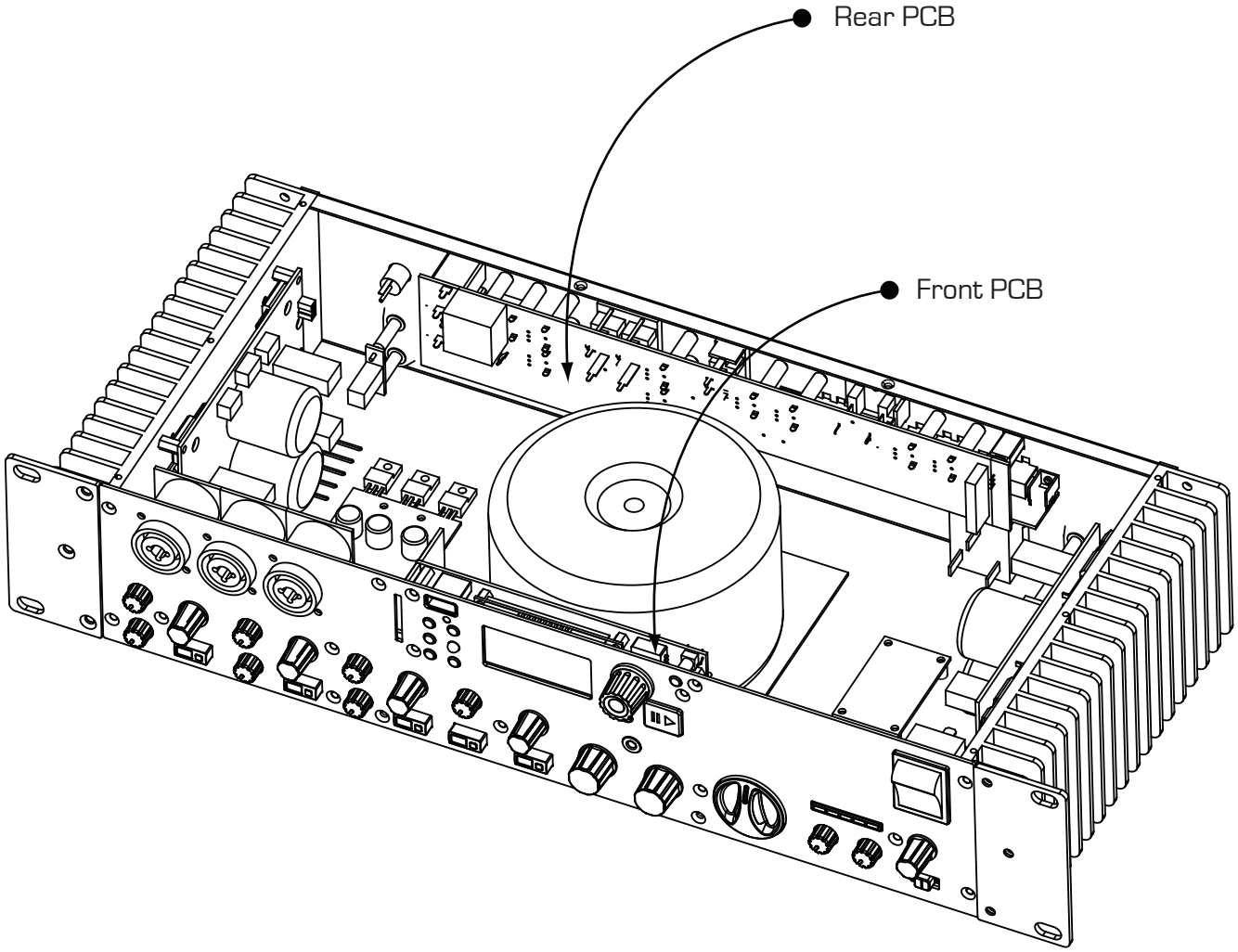

**J7/8/9:** These jumpers enable or disable a +12V DC phantom power supply to the microphone inputs (25), separately for every microphone. Factory default: disabled.
**J13/14/15:** These jumpers enable or disable a 100Hz high pass filter, separately for every microphone. Factory default: disabled.
**J10/11/12:** These jumpers enable transformer isolation for the Mic3 input (25). Position the 3 jumpers all to OFF if no transformer isolation is required (factory default) or all to ON if transformer isolation is required. Transformer isolation will decrease the sensitivity of the microphone input by 10 dB.
**JP3:** Sets the source for the MOH output (x). LINE1 is default.
**JP100:** Sets stereo or mono mode for the output. Factory default: stereo.
**JP21/22:** Determine whether the signal at the SL stereo link preamp output (15) is affected by the emergency signal or not. Factory default: enabled.
**JP16/J17:** Enable a 75Hz HPF for limited frequency range operation. Factory default: off

2. Front PCB



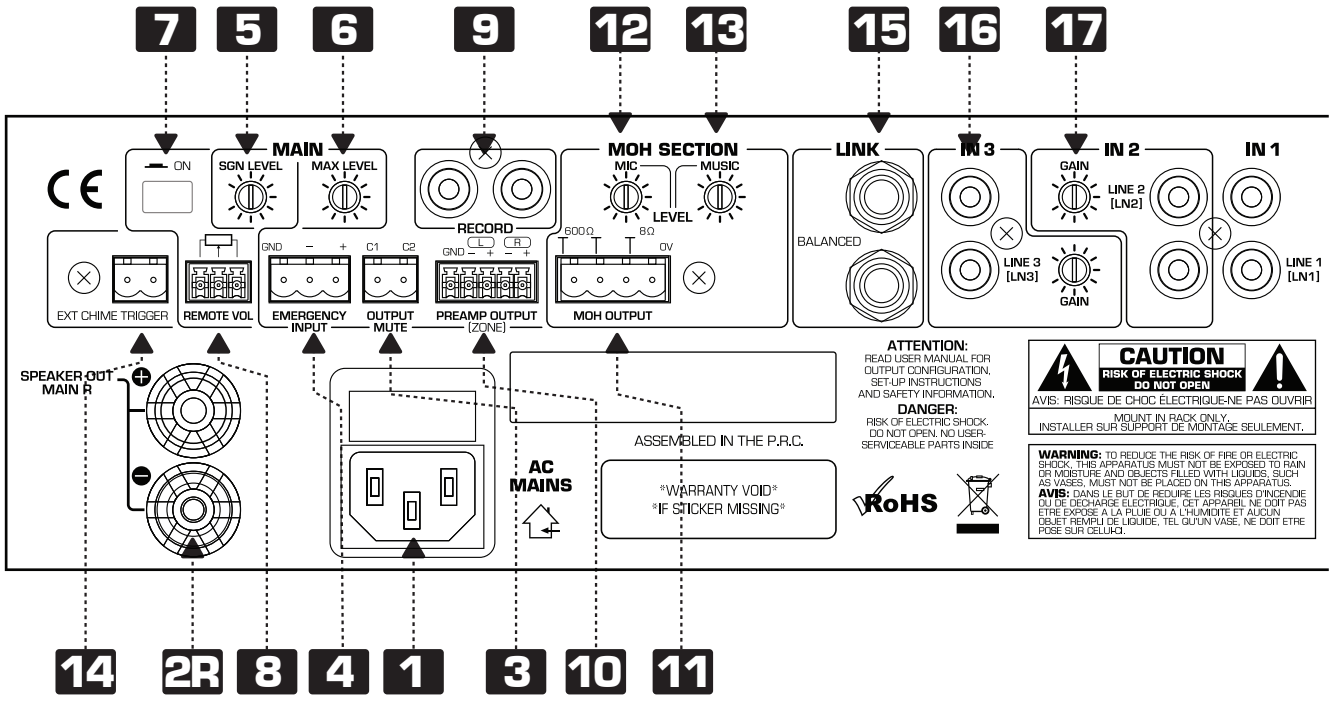

**J300** - Mic Emergency.
This jumper decides whether the internal mics remain active when an emergency signal is present at the emergency input.
Shown position = active (default)
Move jumper to de-activate internal mics in emergency.

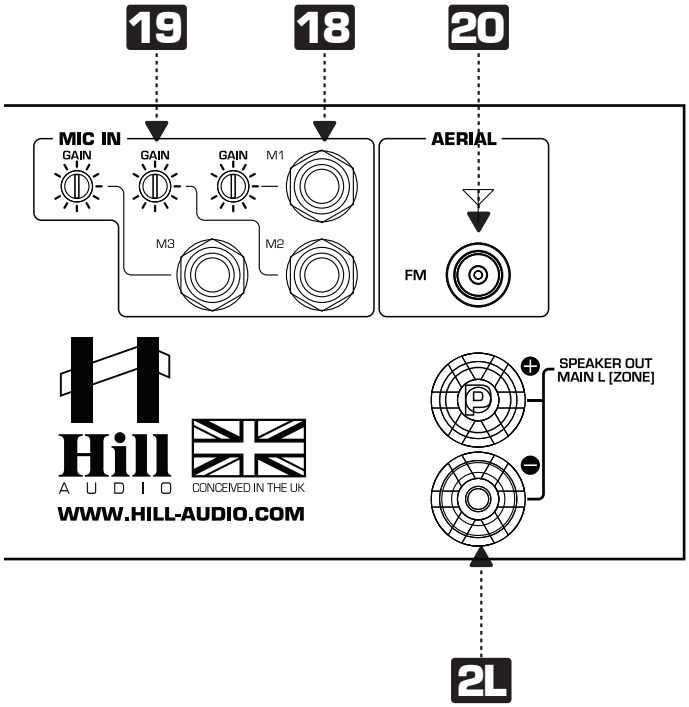
## 3. PCB Location



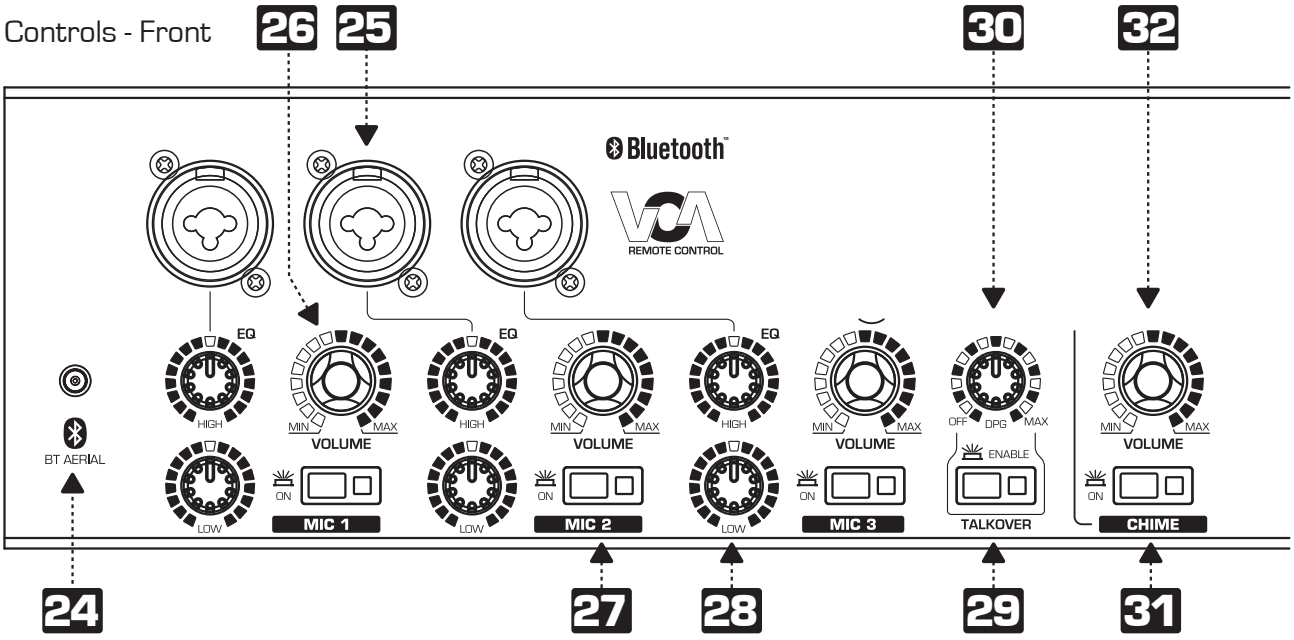
## Controls and Connections

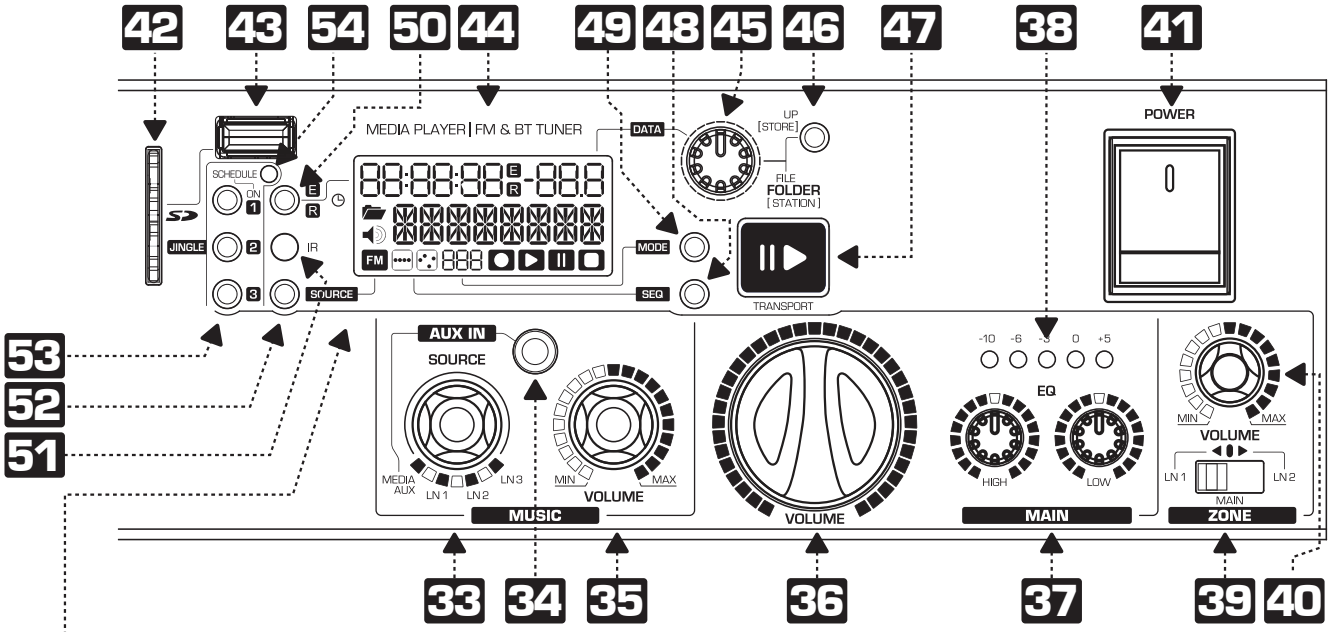
Connections - Rear



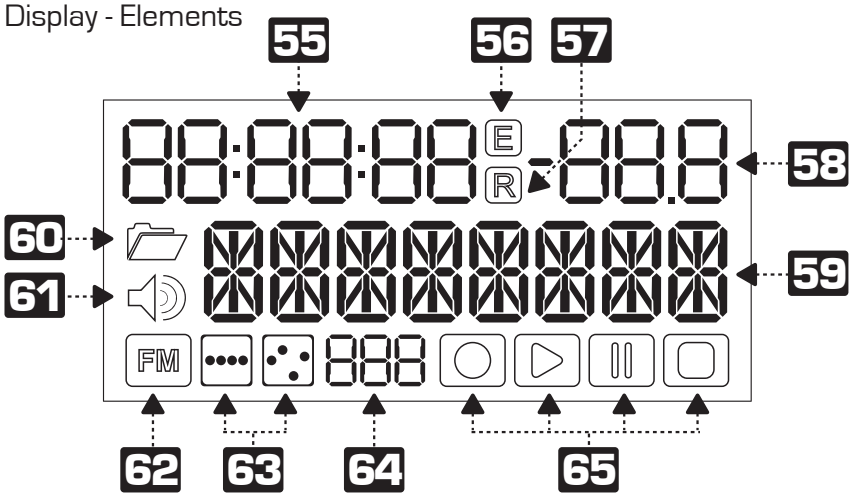



## Controls - Front

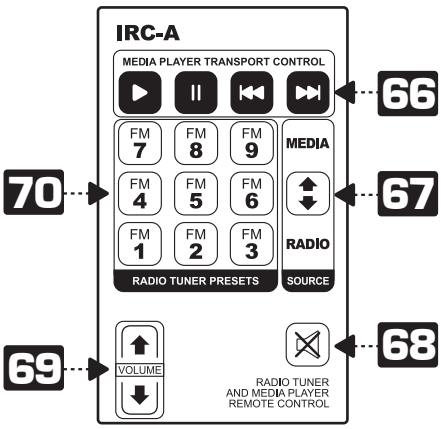



## Display - Elements




## Remote Control - Elements



## Functional Description

The IMA-400V2(B) is a combination of a triple-microphone & music mixer, a media player, and a stereo low impedance power amplifier. Packed in a rugged 19" | 2U case and fitted with forced fan cooling, it's a comprehensive and reliable centre piece for commercial sound systems in retail and hospitality.

**1** AC inlet and fuse holder. Use the supplied AC cord to connect the unit to AC mains. Make sure voltage and frequency stated and set on the unit comply with your local AC supply. The fuse can be accessed by the small drawer at the AC inlet. To change the fuse, unplug the AC cord first, pull out the fuse drawer and replace the fuse ONLY with a fuse of SAME voltage and rating. If the fuse blows again after replacement, hand over the unit to qualified service personnel.

**2L** **2R** Speaker Outputs. Connect your speakers to these outputs. Note that these are low-impedance outputs, not suitable to connect speaker with built-in 100V line transformers. Make sure that the speakers or any combination of speakers have a minimum nominal impdeance of 4 Ohms. Avoid any short circuits between the plus and minus poles of the outputs, and be aware that these outputs may carry voltages which represent a risk of electric shock. Consequently, only connect your speakers when the unit is switched off.

**3** Output Mute connector. This is a terminal block input which allows to remotely mute all output signals (Speakers, PreAmp) by simply shortening the contacts.

**4** Emergency input. This is an auto-sensing, balanced terminal block input which allows the connection to an emergency evacuation system. Once a signal is present on this input, all output signals (Main, Zone) will be muted and the emergency message/signal from this input will become audible instead. Please note that the internal microphones may or may not be included in this muting process , depending on the setting of Jumper J300 (see section "configuration setup") and may hence not be used while an emergency message is broadcasted. Also note that the emergency input will have effect on the speaker output (20 or 21); whether it also affects the Stereo Link (SL) preamp output (15) depends on the setting of jumpers J21 and J22 (see chapter "configuration settings")

**5** Emergency volume control. This control allows to set the level with which the signal fed into the emergency input (4) will be replayed on the speakers (20 or 21) and the Stereo Link (SL) preamp output (15).

**6** Maximum Volume control for MAIN speaker output (20 or 21). Allows to limit the maximum output volume which the user can set with the front-panel MAIN volume control (36).

**7** Remote Enable switch. Pressing these switches enables the remote volume control input (8), and disables the internal main volume control (36).

**8** Volume remote control input. This 3.5mm terminal block input is for connecting an external passive wall control panel of the ZCP-10 type. See chapter "remote volume control" for more information. Note that this input is only enabled when the remote-enable switch is pressed (7).

**9** Record output. This is an unbalanced stereo output carrying the same signal as the main output, but not influenced by the main volume control (36). This is normally used for recording the output to an external tape, CD or memory device.

**10** Preamp Output. This is terminal block which carries a balanced line level signal. The signal at this output is determined by the zone controls (39) and (40) and can be the same as the main output, or can be selected via switch (39) to be the Line1 or Line2 input signal.

**11** MOH Signal output. This output is designed to feed the music-on-hold (MOH) input of a telephone system, which requires the built-in transformer isolation. The output can however also be used as a monitor output, operating at 0dBu line level. Both of these connection options are consolidated into one 4-pin terminal block connector. For connecting the MOH input of a telephone system, use the two contacts labeled "600 Ohms", which indicate the transformer isolated output (nominal level 0dBu, with attenuated low frequency response). For connecting to an external monitor system, use the two contacts labeled "LINE (0dBu)". The signal present at the MOH output can be mixed by the two rear-side controls (12 & 13) from one internally selectable music source and the microphone (for pure MOH purposes, the mic volume shall be set to zero). The music source selection is expedited by internal jumpers (see chapter "setup information", jumper JP3). Note that the front-panel controls of the unit have no influence on the MOH signal, and that the Emergency and Music Mute functions are not affecting the MOH output as well.

**12** MOH Mic level control. Adjusts the microphone level contribution to the MOH signal (11). Turn this control to zero for pure MOH applications.

**13** MOH Music level control. Adjusts the music level contribution to the MOH signal (11). The music signal source is selected by internal jumper JP3 (see chapter "setup information").

**14** External Chime Trigger. Allows to remotely invoke the internal Chime Sound generator by closing these contacts.

**15** Stereo Link (SL) preamp output. This is a pair of 1/4" TRS sockets which carries a balanced line level signal. The signal is the same as the signal at the MAIN speaker output (20 or 21), but on line level, in stereo and unaffected by the MAIN volume controls (6 and 36).

**16** Line Inputs. These are 3 pairs of RCA input jacks, with one of the signals fed into these inputs being selectable as the music source via the source selector (33) and then being controllable in its volume via the music volume control (35). The input gain is adjustable via controls (17).

**17** GAIN control for input channels. This allows the sensitivity (input gain) for every line input to be adjusted, so that sources of different output level can be played at properly balanced levels.

**18** Microphone inputs (rear side). This are balanced ¼" TRS connectors, which can be internally set to either carry phantom power (+12V DC) or not, thus this input can be used both with condenser and dynamic microphones (see chapter "setup configuration", jumper J7, J8, J9 - default is phantom power = OFF). Note these inputs are paralleled with the front-side mic inputs (25); do not connect a microphone to both front and rear input, but to either or.

**19** GAIN control for microphone inputs. These controls allows the sensitivity (input gain) for the input to be adjusted to the microphones in use.

**20** Aerial socket. Plug in the supplied FM antenna here, or connect any suitable antenna cable of the house installation here (75 Ohms cable).

**24** Bluetooth aerial socket. Plug in and secure (by turning the threaded cover) the supplied BT antenna here. Do not use any other than the supplied antenna, and do not operate the Bluetooth option without mounted antenna as this may result in inferior operational range.

**25** Microphone inputs (front side). This are balanced Combo TRS/XLR connectors, which can be internally set to either carry phantom power (+12V DC) or not, thus this input can be used both with condenser and dynamic microphones (see chapter "setup configuration", jumper J7, J8, J9 - default is phantom power = OFF). Note these inputs are paralleled with the rear-side mic inputs (18); do not connect a microphone to both front and rear input, but to either or.

**26** Microphone volume controls. These rotary controls adjust the volume of the microphones connected to the inputs (18/25).

**27** Microphone On-Off switches. Enable the relative microphone when being pressed, and disable the microphone when being released. A LED indicates enables status.

**28** Microphone Equalizer. Allows the adjustment of the tonal balance for each microphone input separately in two voice-specific frequency bands with an adjustment range of ±10dB.

**29** TALKOVER On/Off switch. Engages or disengages the talkover function, which allows to reduce the music level automatically when the microphone is spoken into (also called priority). The amount of damping applied to the music signal is controlled by the damping control (30).

**30** Talkover Damping Control. Provided the talkover on/off switch (29) is set to ON, this control determines the amount of damping applied to the program signal when the microphone is spoken into. Turn clockwise for more attenuation, counterclockwise for less.

**31** Chime switch. Invokes replay of the stored Chime sound. Refer to the chapter "chime player sounds" for more information about Chime sounds. Can also be invoked remotely via (14)

**32** Chime volume. Adjusts the volume of the chime sound replay.

**33** MUSIC source selector. This rotary 4-psotion switch allows to choose any of the 3 rear-side Line inputs (16) to be the music source, or the internal media player. Additionally, a front-side 3.5mm TRS input (34) can be the source, which automatically replaces the Media Player signal if a plug is plugged into the socket (34).

**34** AUX (MP3) Front-side socket. This 3.5mm TRS jack has an auto-switching function which replaces the internal media player signal automatically once a jack is plugged into the socket. This is mainly suitable for MP3 players, smartphones etc. Plug the source into this socket and set the selector switch (33) to MediaPlayer.

**35** MUSIC volume control. Controls the level of the source chosen via the MUSIC source selector switch (33). Note that the microphone volume controls (26), the chime volume control (32) and this MUSIC volume control are all summed before the overall volume is adjusted by the MAIN volume control (36).

**36** MAIN volume control. Allows to set the level of the MAIN output signal, which is composed of the music signal selected by the MUSIC source selector switch and volume control (33 & 34), the microphone signals determined by its relative controls, plus the Chime signal.

**37** MAIN Equalizer. Allows the adjustment of the tonal balance for the MAIN output signal in two music-specific frequency bands with an adjustment range of ±10dB.

**38** MAIN level meter. Indicates the MAIN output level in 5 steps via relative LEDs. Note that the meter only indicates the signal strength after the MAIN volume control (36), but does not account for level reductions set by the rear side maximum volume control (6). If the level meter indicates full volume but the output appears low, check the setting of the rear-side maximum volume control (6) first.

**39** ZONE source selector switch. Determines the source for the ZONE signal. Available choice are MAIN, Line1 and Line2. This signal is available at the Preamp/Zone output (10)

**40** ZONE volume control. Allows to set the level of the ZONE signal, which is determined by the zone source selector switch (39). This signal is available at the Preamp/Zone output (10).

**41** Power switch. Switches the unit on and off. A LED indicates the status. Make sure you switch the unit off when not in use.

**42** SD Card slot. Insert a FAT32-formatted SD card of max 16GB with a one-level folder structure for replay of MP3 files here. If both a USB memory stick is inserted into (43), and an SD card is inserted in (42), the last inserted media will be given priority.

**43** USB memory socket. Insert a FAT32-formatted USB memory stick of max 16GB with a one-level folder structure for replay of MP3 files here. If both a USB memory stick is inserted into (43), and an SD card is inserted in (42), the last inserted media will be given priority. Note: this socket does NOT support USB hard drives, both for memory size and power requirements.

**44** Media player display. Shows track/folder information, time information, play status, replay mode settings and play sequence settings. Details are described under items (55...65)

**45** Data dial. Depending on the chosen source (FM or Media - via control 52), this control has different functionality:
In Media Play mode (Indicator 62 off) | Turn: choose a song/folder, Press: activate the choice.
In FM Mode: (Indicator 62 on) Press: choose between frequency scroll or station preset scroll, Turn: choose frequency or station. The choice is immediately active.

**46** Folder level (Store) button. Depending on the chosen source (FM or Media - via control 52), this control has different functionality:
In Media Play mode (Indicator 62 off) | Press: go to folder level, then navigate by data dial (32)
In FM Mode: (Indicator 62 on) | Allows you to store a new station preset. Choose frequency scroll mode by pressing (45) if required. Press the Folder Level (Store) button (46) once to display the station preset you wish to store the frequency at. Choose the preset by turning (45) and confirm by pressing the Folder level (Store) button (46) again, the station is now stored at the chosen preset.

**47** Media PLAY/PAUSE/STOP button. Press briefly to toggle between PLAY (backlight continuously lit) and PAUSE (backlight flashing) mode. Press for longer than 2 seconds to change into STOP status (backlight off). Restart by pressing the button again, this will commence replay from the last known position when having been in PAUSE mode or from the start of the chosen track when being in STOP mode. This control is inactive in FM mode. The selected status is displayed in the display (65)

**48** Play sequence selector. Selects between
Straight play sequence: The next song is determined by alphanumerical sorting. The left sequence mode indicator is lit in the display (63).
Random play sequence: The next song is determined by random choice. The right sequence mode indicator is lit in the display (63).
This control is inactive in FM mode.

**49** Play mode selector. Selects between
SPL = Single Play. The player stops after playing the current song once. The next song is manually chosen by (45) and determined by the chosen play sequence.
SLO = Single Loop. The player loops the current song endlessly. The next song is manually chosen by (45) and is determined by the chosen play sequence.
ACO = All Continuous. The player continues after the playing the current song. The next song is determined by the chosen sequence. The player stops after the sequence is executed once.
ALO = All Loop. The player continues after the playing the current song. The next song is determined by the chosen sequence. The player repeats the sequence endlessly.
Those chosen play mode is displayed in the display (64). This control is inactive in FM mode.

**50** Time Display selector. Selects between elapsed/remaining time display. The time display choice is shown in the display (56) and is always related to track currently playing. This control is inactive in FM mode.

**51** IR Receiver sensor. If using the included IR remote control, make sure an unobstructed line of sight is available between the remote control and the IR receiver sensor.

**52** SOURCE button. Toggles the program source between Media play and FM Tuner (and BT-AUX in the Bluetooth version IMA-400V2B). If FM Tuner is chosen as the program source, the display's FM Mode indicator (62) is lit while the media replay related indicators (63/64/65) are disabled. Further the media replay related user interface elements (48/49/50) are disabled and the functional assignment of the navigation controls (45/46) is changed.

**53** JINGLE buttons. Provided that the inserted media contains a folder named "Jingles" in its root directory, and that the files in this folder follow certain naming conventions, up to 3 of these files can be activated by the buttons (53). When a jingle is activated, the current program is muted and the jingle is played instead; however, the program progresses in the background. Jingles can be played both in Media play mode and FM mode. A further scheduled jingle play mode is available by pressing the J1 (jingle 1) button for longer than 2 seconds, the LED (54) will indicate that the scheduled jingle play mode is active. To de-activate the scheduled jingle pay mode, press the J1 button again for more than 2 seconds. For more details, please see the "Jingle player" chapter.

Scheduled Jingle Play Mode Indicator. This LED is lit when the scheduled jingle play mode has been activated by pressing the J1 button for longer then 2 seconds.

## Display Elements

**55** Time Display. Depending on the chosen source (FM or Media - via control 52), this part of the display shows different content:
In Media Play mode (Indicator 62 off): Either the remaining or elapsed time are displayed in a hh:mm:ss format, depending on the setting made by (50).
In FM Mode: (Indicator 62 on): If the unit works in station scroll mode, the currently chosen station preset number is displayed. If the unit works in frequency scroll mode, this part of the display remains unused (blank).

**56** Time Mode Display (Elapsed): In Media play mode, this part of the display indicates that the elapsed time of the current track is shown in the time display (55). The setting can be altered by (50). This part of the display remains unused in FM mode.

**57** Time Mode Display (Remaining): In Media play mode, this part of the display indicates that the remaining time of the current track is shown in the time display (55). The setting can be altered by (50). This part of the display remains unused in FM mode.

**58** Numeric data display. This part of the display is not used in this product. This is NOT a malfunction.

**59** 8-Digit Clear Text Readout. Depending on the chosen source (FM or Media - via control 52), this part of the display shows different content:
In Media Play mode (Indicator 62 off): The file name of the currently playing track is shown, with its first 30 digits scrolling through the display. Letters exceeding 30 digits will be discarded. Note that this is NOT an ID3 tag readout, but a file name readout, so files must be named properly to yield a sensible displayed content. The display will show the file name and alternate with the folder name the current file is located in. Whether at a specific time the file or the folder name is displayed, is indicated by the respective symbols (60/61)
In FM Mode: (Indicator 62 on): The RDS station name (PS section of the RDS signal) is displayed if the received FM signal contains this information. If no RDS station name is available, the currently tuned frequency is displayed. Note that this unit only displays the station name of the RDS signal, no other potentially contained RDS content.

**60** Folder Name Display Indicator. In Media play mode, this indicator shows that the current content of the Clear text readout (59) is a folder name. This indicator is not used in FM mode.

**61** File Name Display Indicator. In Media play mode, this indicator shows the current content of the Clear text readout (59) is a file name. This indicator is not used in FM mode.

**62** Source Mode Indicator. Shows whether unit is in Media play mode (indicator off) or FM mode (indicator on). The mode can be changed via the control (52).

**63** Play Sequence Indicator. In Media play mode, this indicator shows whether the unit is set to straight sequential or random play sequence. The setting can be altered by control (48). This indicator is not used in FM mode.

**64** Play Mode Indicator. Based on the selection made by control (49), this part of the display shows the letters “SPL”, “SLO”, “ACO” or ALO“. This indicator is not used in FM mode.

**65** Transport status indicators. In Media play mode, 3 standard symbols indicate whether the unit is in PLAY, PAUSE or STOP status. The 1st (outmost left) indicator is not used in this product; this is NOT a malfunction.

## Remote Control Elements

This unit includes an IR (infrared) remote control. For proper operation, a line of sight between the remote control and the sensor on the unit (51) is required. The IR remote does only control the basic functions of the media player section and as such adds convenience to the operation, but does not replace the front panel control on the unit itself.

**66** Transport Controls. In Media play mode, the 4 transport control buttons allow you to start and pause a track, and further skip to the next track or back to the beginning of the current track. These controls are inactive in FM mode.

**67** Source button. Toggles the program source between Media play and FM Tuner. If FM Tuner is chosen as the program source, the display's FM Mode indicator (62) is lit while the media replay related indicators (63/64/65) are disabled. Further, the media replay related user interface elements (48/49/50) are disabled and the functional assignment of the navigation controls (45/46) is changed.

**68** Mute button. Toggles between muted and un-muted output of the media player.

**69** Volume control (up/down). Allows you to set the required audio volume of the media player.

**70** FM preset station buttons. Allows to remotely activate the stored FM station presets. These buttons only work in FM mode and are disabled in Media play mode. Note that manual tuning via the IR remote control is not possible.

## **Bluetooth Replay** (only versions with built-in BT receiver)

The IMA-400V2 is optionally available with built-in Bluetooth module (version IMA-400V2B). This module can not be retrofitted and the availability of the Bluetooth-enabled version might be subject to territorial restrictions.

To connect a Bluetooth source like a smartphone or tablet to the IMA-400V2B, follow the below procedure:

- Press the SOURCE button (52) until the display shows "AUX-BT" in the display area (59)
- Activate BT on the source device (phone, tablet)
- Search /(Scan) for Devices on the source device
- Select "Bluetooth Board" and confirm connection request
- Wait for single beep from the IMA-400V2B
- The devices are now paired the IMA-400V2B is ready to receive audio via BT

Note: Only one device can connect - once a device is connected, the BT board will not appear on the device scan of any other device.

To disconnect, simply do the following:

- Tap on existing BT connection in your source device
- Wait for dual-tone beep from the IMA-400V2B
- The devices are now unpaired and the IMA-400V2B is ready to be paired with a different device.

Please note that the maximum distance of operation between your source device and the IMA-400V2B depends on many factors, such as other interfering signals, the position of the IMA-400V2B in the room, the position of the source device in the room, and the antenna/bluetooth hardware design of the source device. While Bluetooth shall work as a rule-of-thumb up to 10m distance, certain hardware combinations, geometrical setups or the presence of interfering signals can reduce this significantly. The manufacturer of this device does not grant any specific operating distance.

## Notes on files, folders and data conventions

The media player section build into this unit is a hardware player and as such subject to various restrictions, which are useful to be aware of:

- Media Memory types. The player only works with SD cards and USB sticks up to 16GB of size which are formatted in FAT32 file system and contain a maximum of 2000 files. The player does NOT support larger memory sizes, external hard disks or any media with NTFS formatting.
- Media File types. The player's replay ability from solid state memory media is limited to MP3 files in MPEG 1 Layer 3, MPEG 2 Layer 3, MPEG 2.5 Layer 3 standard, with sample rates of 128/160/192/224/256/320 kbps + VBR. Any other files existing on the solid state memory media will be ignored and are not available for replay.
- File/Folder Structure. The player only allows a two-layer folder structure on the solid state media memory, meaning a root layer and a folder layer, but not any cascaded folder-in-folder structures. Such subfolders will be ignored and their content is not available for replay. Playable files located in the root layer are displayed in a folder named "ROOT" although this folder does not physically exist on the solid state memory media.
- Folder Sorting. Folders are displayed in the sequence of their creation dates on the solid state memory media. If a specific sequence is needed, then the folder shall be created in this sequence on the memory media before copying any MP3 files into them.
- File Sorting. Files are sorted alphanumerically, but due to file system limitations, the sorting is limited to the first 8 digits. This may in some cases - where the first 8 digits are identical - lead to a random-looking, not alphabetical sorting sequence of files.
- File system cache. In order to allow relatively quick access to the file directory during navigation, the player loads a copy of the file directory into its own memory upon insertion of the solid state memory media. This loading process requires some time, during which the display shows a count-down. The time required is about 4 seconds per 100 tracks with a maximum of 2000 tracks (meaning Max. 80 seconds loading time).
- Displayed File/Folder names. MP3 files are displayed with the first 30 digits of their file names in a scrolling manner; digits exceeding the first 30 will be ignored. Note that the display data is the file name and NOT the ID3 tag of the file. Folders are displayed with the first 10 digits of their names, any exceeding digits will be ignored.

## Jingle Player

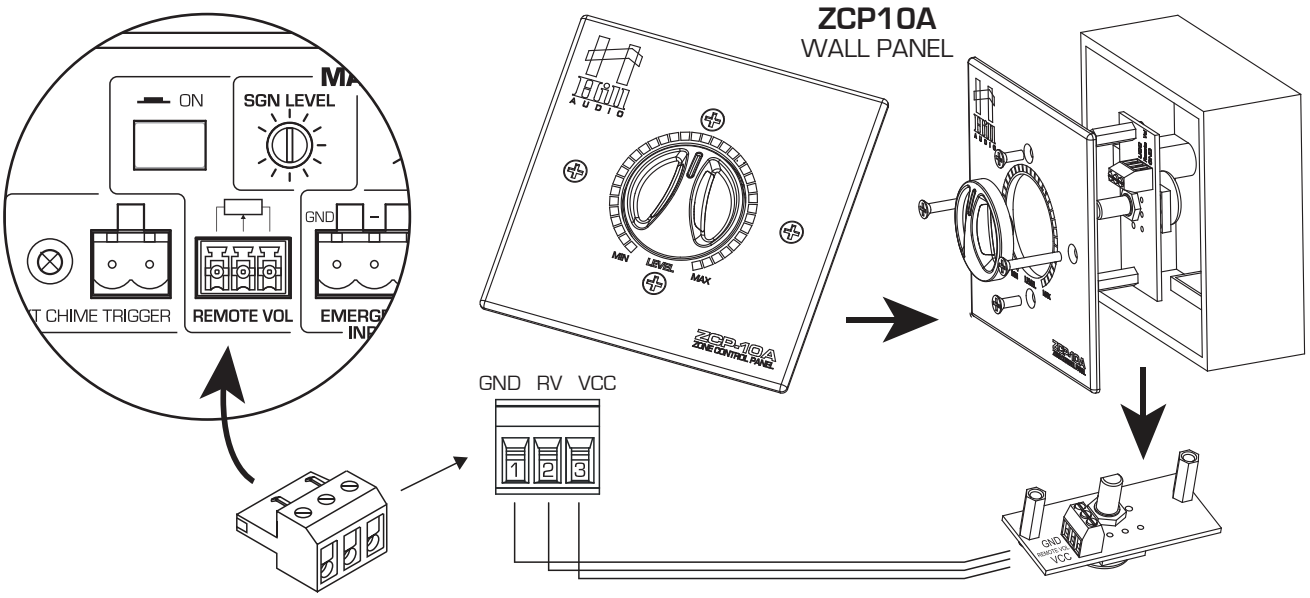
This unit contains a Jingle player with a one-shot mode for teasers and a scheduled mode for commercial purposes (like playing advertisements in a certain sequence). To make use of the feature, the user must create a folder named "Jingles" on the solid state memory media. The folder must have exactly this name (with capital J and lower case following letters) and will not be available for choice during normal replay.

The jingle files stored in this folder have to be prepared with specific names as well, and have to follow the structure jx_yy with x from 1...3 and yy from 00 to 99. In this format, x defines the jingle number (with a maximum of 3 jingles allowed) and yy being the number of minutes of background music the jingle is followed by in scheduled jingle play mode. As an example, three jingles could be named j1_01.mp3, j2_04.mp3 and J3_05.mp3. These three jingles will then be available for direct one-shot play on pressing the jingle buttons (19), with each jingle assigned to the relative button.

A scheduled jingle play mode can be activated by pressing the J1 button for longer than 2 seconds, allowing the jingles to be inserted into the program in an automatic sequence with a certain duration of background music in between. The jingle replay would in the above example start immediately with Jingle 1 followed by 1 minute of background music, then Jingle 2 followed by 4 minutes of background music, then jingle 3 followed by 5 minutes of background music; after this, the sequence would loop. If less jingles are stored in the Jingles folder, the loop runs after the last available jingle. As another example, if only one jingle named j1_02 is stored in the Jingles folder, then this would mean the jingle would play every 2 minutes in scheduled jingle pay mode.

## Remote Volume Control

The IMA-400(V2B) allows to use an external wall-mounted passive volume controller to be used for remote volume control. These wall-mounted volume controllers shall be of the ZCP-10A type and need to be connected as per below wiring diagram to the remote volume control ports (6) on the unit's rear-panel. After correct wiring, pressing the remote volume enable switch on the rear panel (7) will enable the remote volume controller in lieu of the on-board volume control (36), which is then disabled.




## Chime Player Sounds

The IMA-400V2(B) stores the chime sound which is invoked by the Chime player controls (14, 31. 32) on a Micro-SD Card. The unit comes pre-programmed with a standard chime sound; however this sound can be changed to anything the user deems suitable.

To change the chime sound, it is requires to open the unit. Such work shall only be expedited by a qualified technician after disconnecting the unit from AC mains, The safety precautions stated in the "configuration setup" chapter apply.

After opening the unit, expedite the following steps:

- Locate the Micro SD card socket on the rear of the front PCB and remove the Micro SC card.
- Do not reformat the card, or format the card with the FAT file system if using a new card.
- Prepare your file on a PC using an audio editor, for example the freeware Audacity:
  - ☐ Convert the sampling frequency to a value <= 48kHz
  - ☐ Reduce a stereo track to mono
  - ☐ Compress/normalize to a peak level below 0dB (Audacity: Effects/Compressor)
  - ☐ Save the file as WAV (Microsoft) signed 16bit PCM
- Re-insert the Micro SD card and close the unit.

The manufacturer may from time to time publish suitable sounds on the product website.

## Operation

A. Connections

For connecting this unit to AC mains, please note:

- Check whether the AC mains voltage and frequency is the same as this product is specified for (see rear panel of product). Whenever the specified voltage or your AC plug should not match the local conditions, do NOT plug the AC cord into the wall outlet and contact you dealer immediately.
- Do not operate this unit without the line cord earth ground connected. To do so may increase the risk of electric shock and increase line cord conducted emissions.

For making audio signal connections, always remember that good and reliable connections are a basic requirement for good sound and reliable operation. Bad soldering of cables can result in intermittent audio signals or temporarily lost ground connections, hence always use good cables. In case of doubt about making proper connections, please see check the standard pin assignments required for proper operation in the following section of this manual.

B. Powering up

Following a proper power-up sequence protects your equipment – specifically speakers – and your ears. Follow the below procedure:

- Turn down all output volume controls of any equipment in your audio system.
- Switch on your audio sources first (Tuners, CD Players, PC's with soundcards, Tapedecks, etc.)
- Switch on this unit, and set it to the desired audio source
- Turn up the audio level on your sources if such controls are provided.
- Set the MAIN and ZONE volume controls of this unit to a low level.
- Make adjustments to all volume settings as needed.

For switching off, follow the inverse sequence – always switch off this unit first, then the connected audio sources.

C. Use

Apart from using good equipment, good sound comes from using it correctly. Level setting mistakes are one of the common reasons why even good equipment may not perform as desired. For setting levels, please be reminded that two guidelines need to be followed:

- Avoid distortion by leaving some headroom. Never overrun any audio-equipment's inputs. Level meters and displays allow you to make sure that signals do not enter critical levels.
- Avoid unnecessary amplification by using as little attenuation as possible. For example, if you turn down the input gain of a mixer to minimum, and then increase the main output of the mixer to maxi mum to drive your amplifier properly, you will create unnecessary noise, as you first dispose of some already existing signal level, and then later apply amplification (tainted with noise) to make it up.

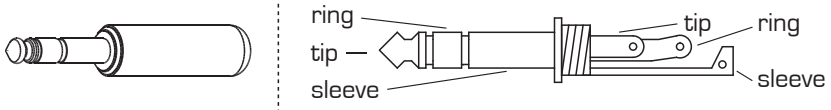
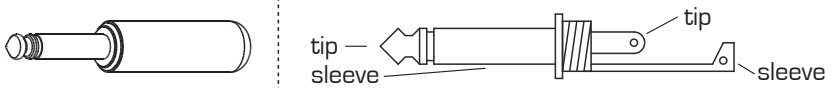
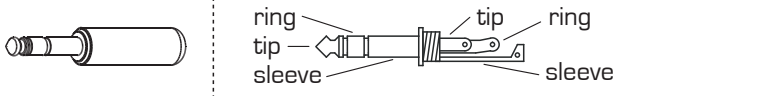
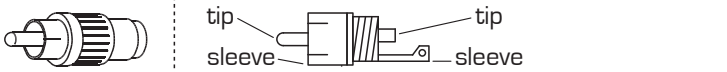
Obviously, these two requirements are marking a levelling window that the operator must match to achieve a good sound with as little distortion and noise as possible.

**WARNING - HEALTH RISK**

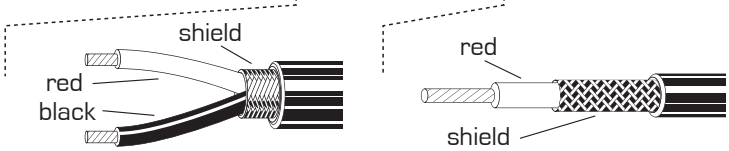
Excessive volume levels on headphones or other sound systems may cause hearing damage. Always turn the volume control to minimum when you switch the unit on, and avoid prolonged exposure to sound pressure levels exceeding 90dB.

## Connections

This unit uses the below connector types, for which the pin assignment must comply with the following specification. Always make sure to use good connectors and cables to ensure proper operation. Balanced connections are to be preferred over unbalanced connections where applicable and feasible. Avoid unbalanced connections exceeding 2m of cable length.

| | Structure | Balanced connection | Unbalanced connection |
|---|---|---|---|
| **XLR male** |  | red = 2<br>black = 3<br>shield = 1 | red = 2<br>shield = 1+3 |
| **XLR female** |  | red = 2<br>black = 3<br>shield = 1 | red = 2<br>shield = 1+3 |
| **6.35mm TRS-stereo** |  | red = tip<br>black = ring<br>shield = sleeve | red = tip<br>shield = sleeve+ring |
| **6.35mm TRS-mono** |  | red = tip<br>black = sleeve<br>shield = uncon. | red = tip<br>shield = sleeve |
| **3.5mm TRS-stereo** |  | red = tip<br>black = ring<br>shield = sleeve | red = tip<br>shield = sleeve+ring |
| **RCA** |  | red = tip<br>black = sleeve<br>shield = uncon. | red = tip<br>shield = sleeve |
| **Terminal Plug** |  | | red = 1<br>black = 2 |

**CABLE Types**




2-conductor shielded cable
(for balanced connections)

1-conductor shielded cable
(for unbalanced connections)

## Technical Specifications

Power (RMS) stereo.....2×100/160@8/4 Ohms
Signal/Noise.....>82dB (Line)
Crosstalk Damping.....>65dB (Line)
THD.....<0.05% (Line)
Frequency response.....20Hz – 20 kHz

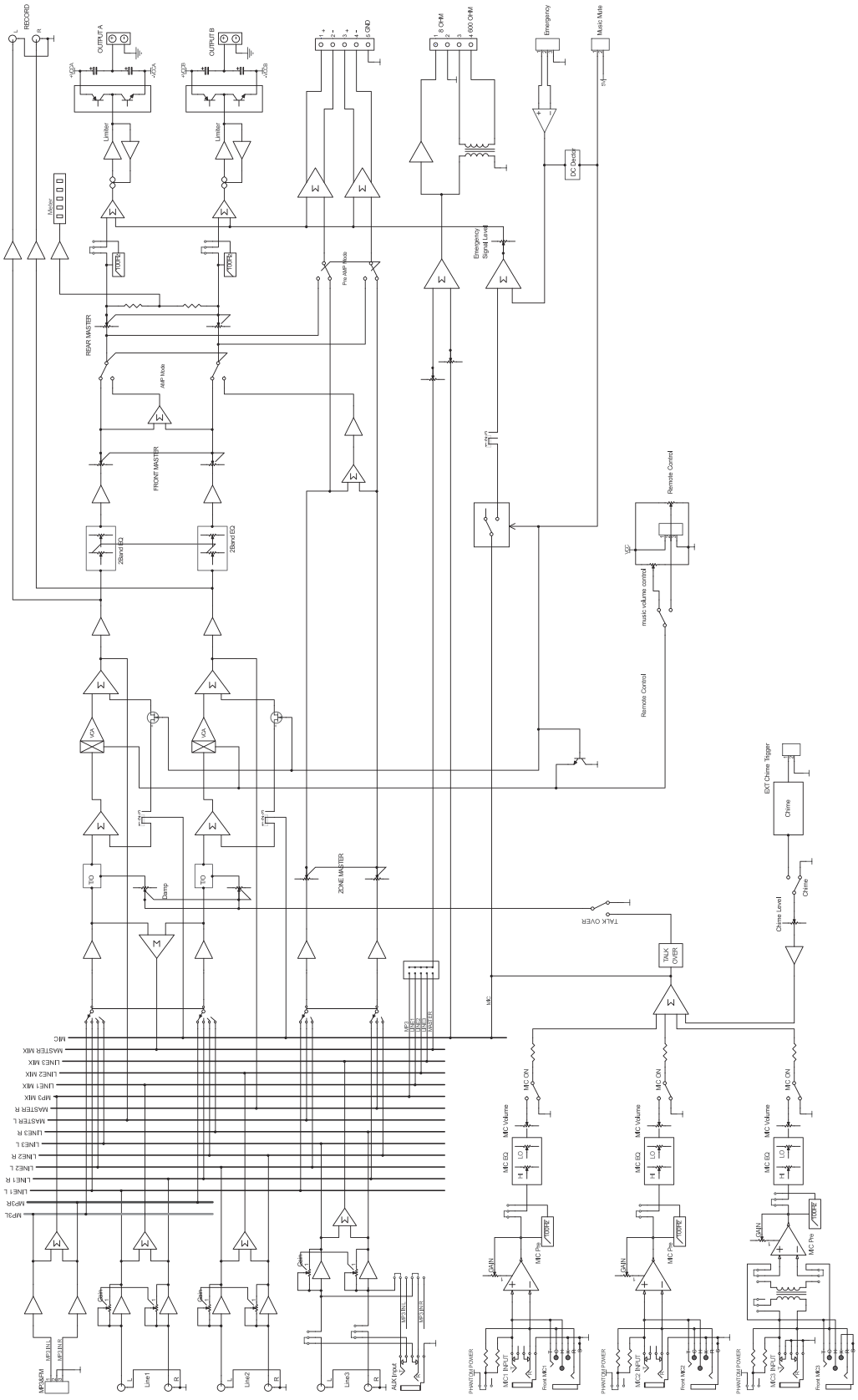
AC IN (230V setting).....AC220-250V~ 50Hz
AC IN (115V setting).....AC110-120V~ 60Hz
Power consumption.....max. 350W
Dimensions.....W483.0×H88.5×D228.0mm
Weight.....11.35 kg

## Maintenance and warranty

While we have chosen the best components to make this product as rugged and reliable as possible, some parts in audio products (potentiometers, faders, switches) are subject to wear which is a matter of operation cycles, and not of time. While providing a full time-based warranty according to the country's of purchase requirements on the function of the electronic circuitry, we hence have to limit the warranty on such electro-mechanical parts to 90 days from the date of purchase.

In many cases, malfunction of electro-mechanical parts occurs due to dust contamination, which may require cleaning of such parts. As the inside of such parts is not accessible, a common practice is to use cleaning fluids in the shape of sprays. Please be reminded that many of such fluids contain chemicals which may wash away the dust but at the same time corrode or damage contact surface and may cause cosmetic damage to other parts. We hence explicitly exclude any claims for exchange of damaged part due to mechanical or chemical impact.

## Block Diagram



# EC Declaration of Conformity

Manufacturer: Adelto Technologies Limited
Address: Unit 2A Springfield Road, Springfield Industrial Estate
Burnham-on-Crouch, Essex CM08UA, England

We declare on our own responsibility, that the equipment

**Hill Audio IMA-400V2**
**Hill Audio IMA-400V2B**

is in conformity with the following directives and standards or regulations:

**EMC Directive 2014/30/EU**
EN55032:2012 (Emissions)
EN55103-2:2009 (Immunity)
EN61000-3-2:2014
EN61000-3-3:2013

**LVD Directive 2014/35/EU**
EN60065:2014

**ROHS2 Directive 2011/65/EU**

and is marked as follows: CE

Burnham-on-Crouch, 30.06.2017
Place and date of issuing

Authorized Signature



Hill Audio products are developed, manufactured and distributed by
**Adelto Technologies**
Unit 2A Springfield Road, Springfield Industrial Estate, Burnham-on-Crouch, Essex CM08UA, England
www.adelto.com | sales@adelto.com