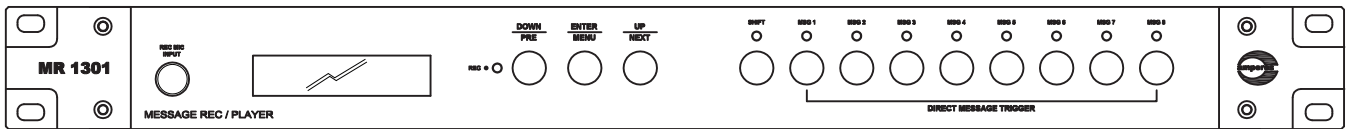




# INSTRUCTION MANUAL

## MR1301 MK II EVAC Message Recorder / Player



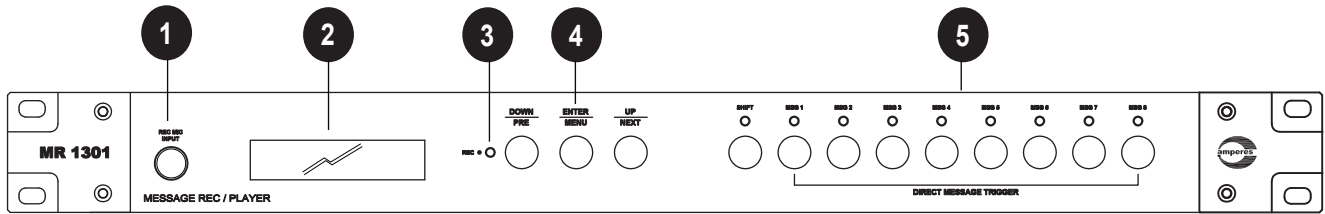
Thank you for choosing another quality product from Amperes Electronics.

MR1301 MK II is a totally revamped EVAC Message Player which utilised Web Technology inline with current trends of today's demanding requirement in PA system. System set up has been made easier and more flexible through web browser, including file uploads and downloads, remote monitoring and controls.

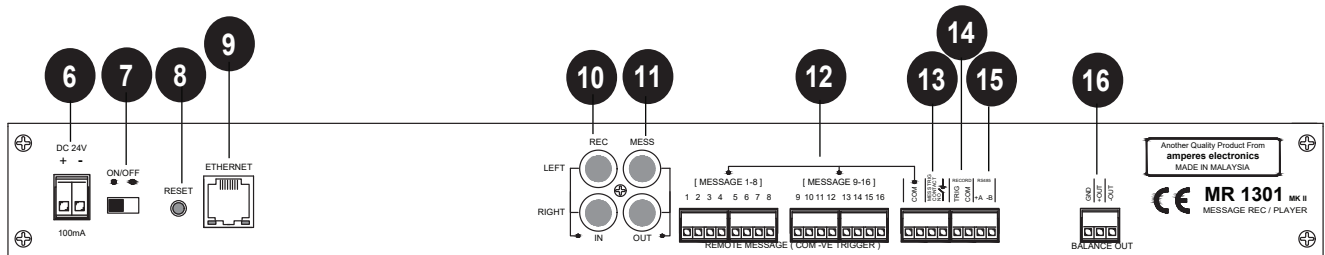
It is born out of years of experience in developing and improving the needs for a reliable EVAC messaging tool. With valuable feedbacks, we are proud to present this remarkable tool to further enhance the effectiveness of message deliveries.

As previous versions, it can integrate conveniently with other conventional products such as with PT1801, MX2222, EP1200 and so forth. Employing MR1301 MK II is definitely a great way of enhancing your system, and also you shall be assured of its quality and reliability.

# Parts Identification



Front View



Rear View

## 1. MICROPHONE INPUT PORT

Dynamic mic with 1/4" phone jack is inserted to this port for speech recording.

## 2. LCD

2 X 16 characters LCD to show MR1301 status and configuration instructions when navigate the LCD menu via front panel buttons.

## 3. RECORDING LED

This LED shall lit when MR1301 enter recording mode

## 4. CONTROL BUTTONS

Buttons for LCD menu navigation and various playback, recording and volume controls.

## 5. MESSAGE KEYS

8 message keys for message 1 to message 8 activation. Press Shift + message key allow us to activate message 9 to message 16. When a message is playing, the corresponding LED indicator shall lit.

## 6. POWER CONNECTOR

24V DC input for power, use only regulated power supply or Amperes PS9400 power supply unit.

## 7. POWER SWITCH

Power switch for the unit.

## 8. RESET BUTTON

Hold this button for 5 sec to reboot MR1301. This button also allow the unit to enter bootloader mode. Please refer to firmware update section for details.

# Parts Identification

## 9. ETHERNET PORT

Ethernet port for connection to network switch.

## 10. RECORDING INPUT

RCA ports for recording from external source with line level output, such as CD, MP3 players, etc.

## 11. AUDIO OUTPUT (UNBALANCED)

Unbalanced line level output for message playback.

## 12. EXTERNAL TRIGGER PORT

Dry contacts to trigger the stored messages 1 to 16. Only voltage free contact is allowed to avoid damage.

## 13. DRY CONTACT

This dry contact will get activated whenever a message playback is activated. It can be used to activate other devices such as volume controller, zone selector and etc.

## 14. RECORDING TRIGGER PORT

External dry contact can trigger recording via this port. Latch the contact to activate recording, release to stop the recording.

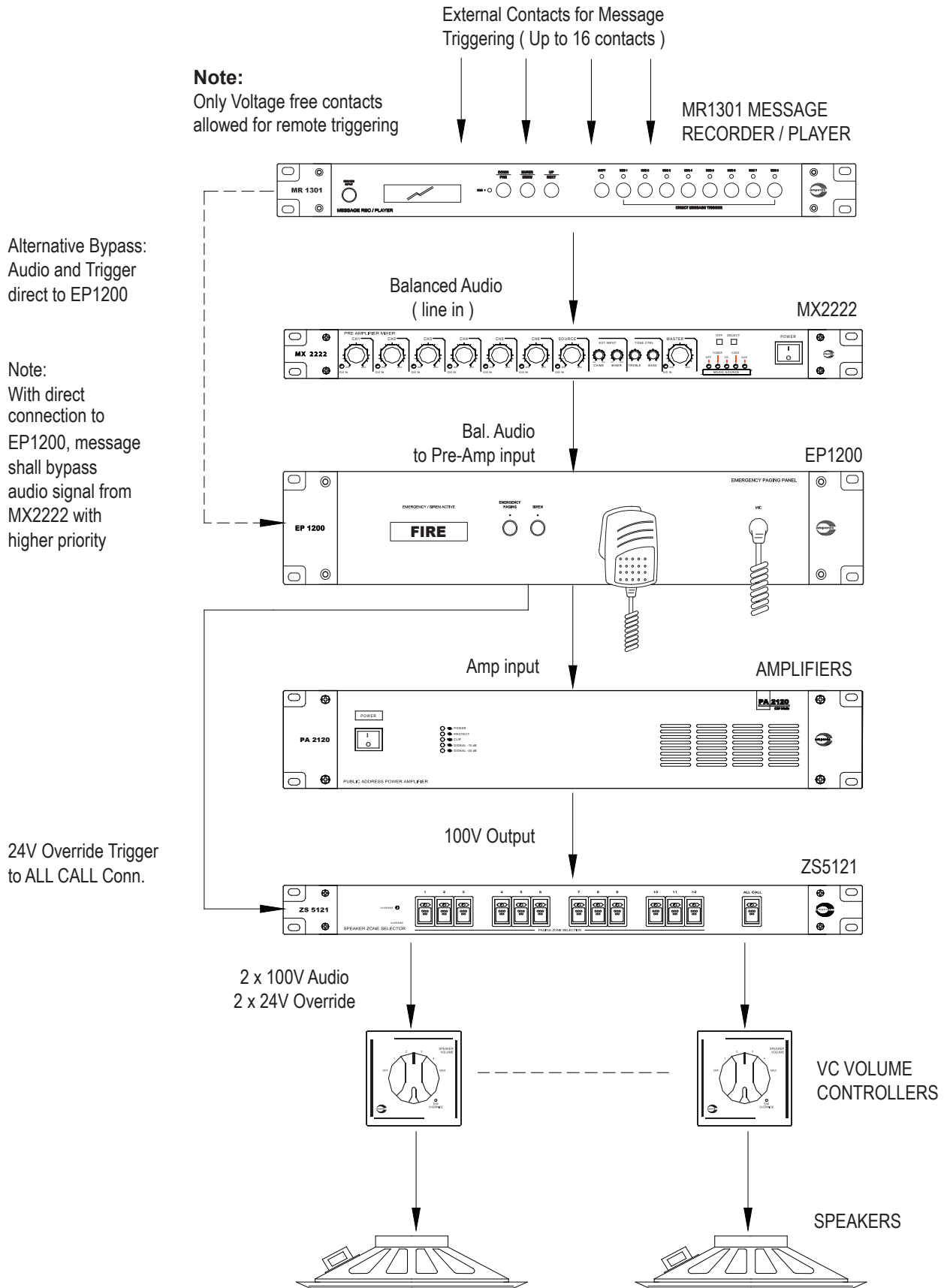
## 15. RS485 PORT

Fire Alarm Interface, FI6100, can activate message playback on MR1301 via this RS485 port.

## 16. AUDIO OUTPUT (BALANCED)

Balanced line level output for message playback.

# Schematic Diagram



The above diagram shows typical schematic using MR1301 as message player, either for general repetitive message playback or for emergency voice evacuation purpose.

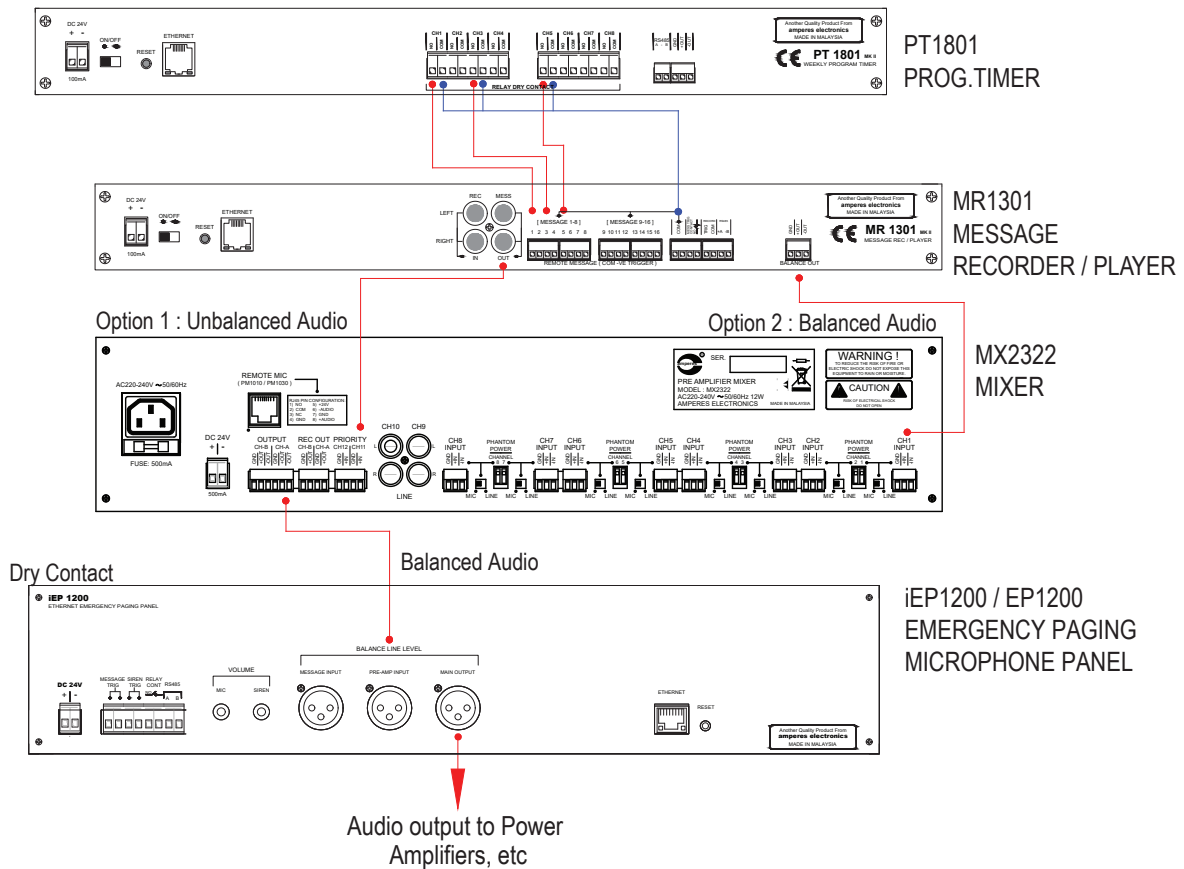
# Connecting the Unit

MR1301 can be used as :

- Source playback unit, for delivering pre-recorded messages or songs, and if repetitive playback at certain times is required, it can be used together with a timer.
- Emergency broadcast message playback unit, which is linked to external triggering devices or systems, such as alarm, BAS or emergency push button.

Connections of both applications are shown in the diagrams below.

## Option A : Using MR1301 for Normal Message Source



Stored messages can be played either from the front buttons or via the remote triggering ports.

The above diagram shows connections of 3 output channels of PT1801 connected to 3 individual triggering ports of MR1301. It is intended to perform 3 different times to playback 3 different messages. Activation of each message is via negative grounding.

Output from MR1301 can be unbalanced using RCA jack, or balanced signal using mini phoniex connector. Both outputs are in mono mode, with line level signal.

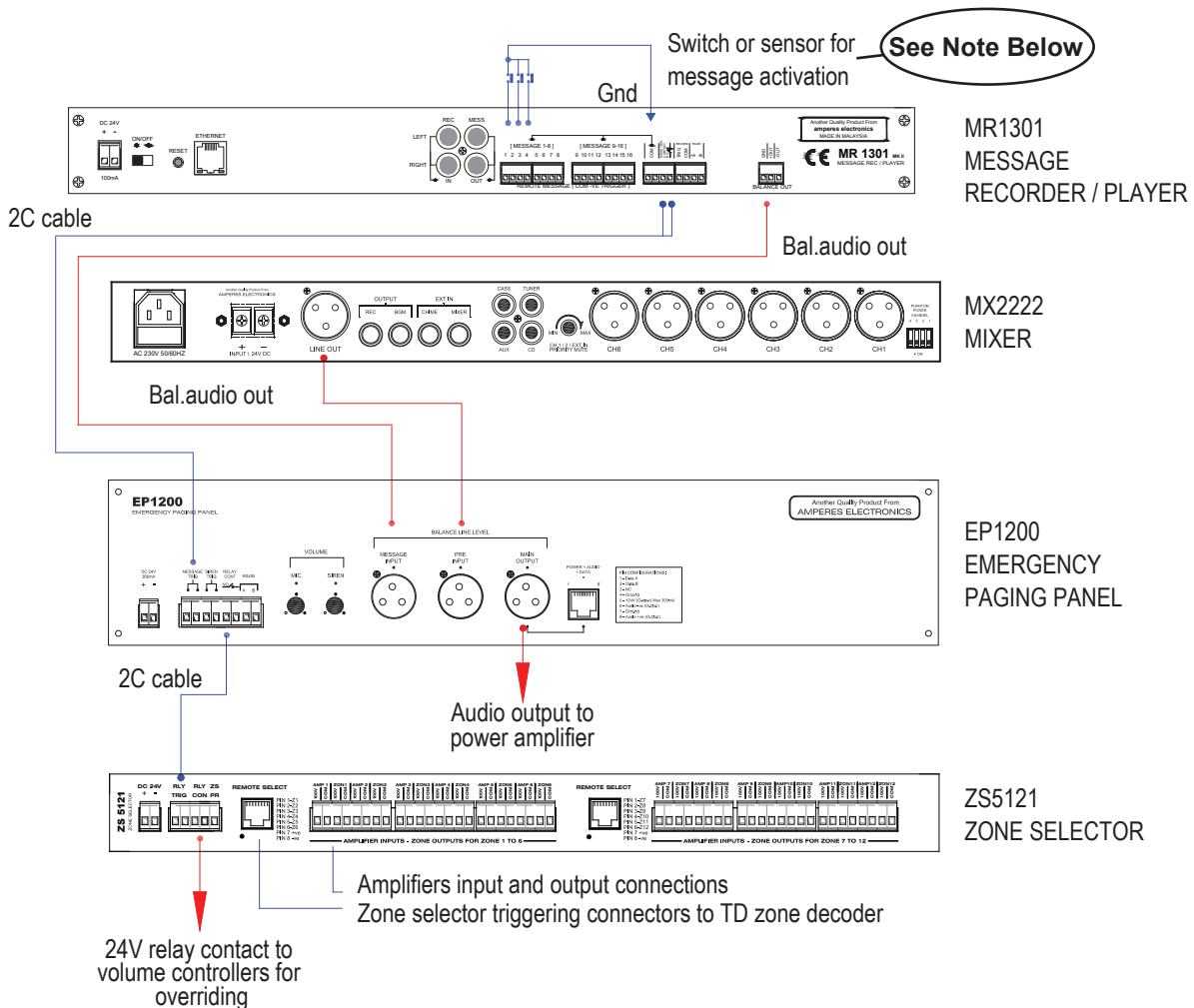
### Note :

Activation of a stored message can be either momentarily or latched contact to ground. To activate from PT1801 timer, we recommend that the contact option at the channel output to be set to Pulse. By default, MR1301 shall consider a pulse that less than 8 sec as a momentary contact otherwise it shall be regarded as a latched contact. The 8 sec can be changed in System configuration of MR1301.

# Connecting the Unit

## Option B : Using MR1301 for Emergency Announcement

MR1301 can be used as essential message source to PA system, linked to external activation device such as BAS system, emergency push button, etc.



The dry contact at the MR1301 is used to trigger EP1200, thus overriding the normal audio source for priority paging. It is then connected to the Emergency Relay trigger at the Zone Selector, providing a dry contact for connecting 24V DC to override external volume controllers.

### Note:

MR1301 dry contact is in latched state as long as the message playback is ongoing. This shall perform bypass of mixer audio output at EP1200 until the message is stopped.

### Triggering Pre Recorded Message via UART ( RS485 )

MR1301 allows remote message activation via RS485 through the port available at the rear panel. To use this feature, please enquire from us for further technical details.

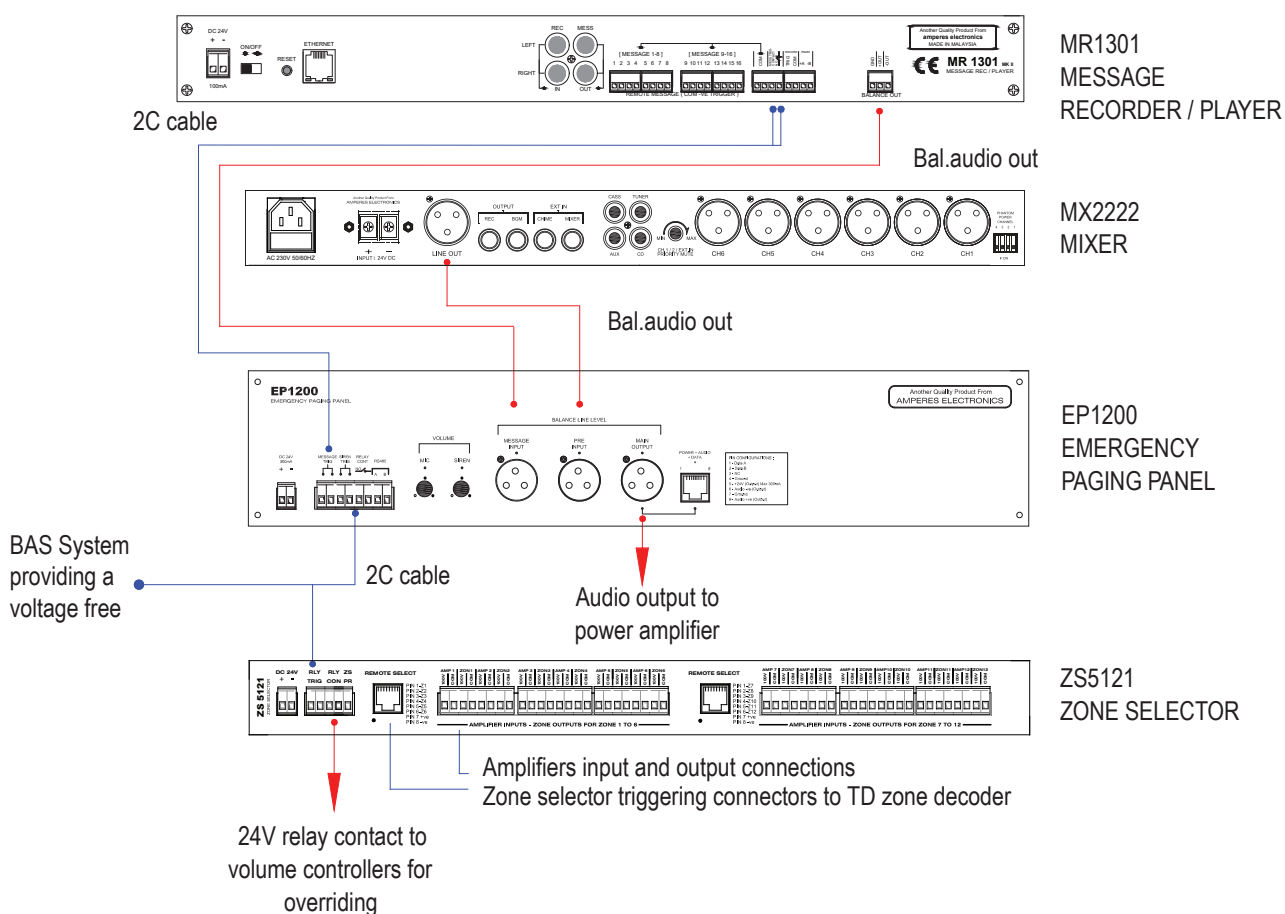
# Connecting the Unit

## Option C : Using BAS to control MR1301

In cases where Building Control System or BAS to be the domain controller including emergency voice announcement, it can be used to activate particular pre-recorded messages at MR1301.

The BAS would provide a close dry contact, which would activate mixer audio bypass at EP1200, as well as triggering a message at MR1301.

The typical connection diagram is illustrated below :



As EP1200 requires a latched contact to bypass the mixer output audio, BAS system should be able to provide a latched contact for the duration of the event.

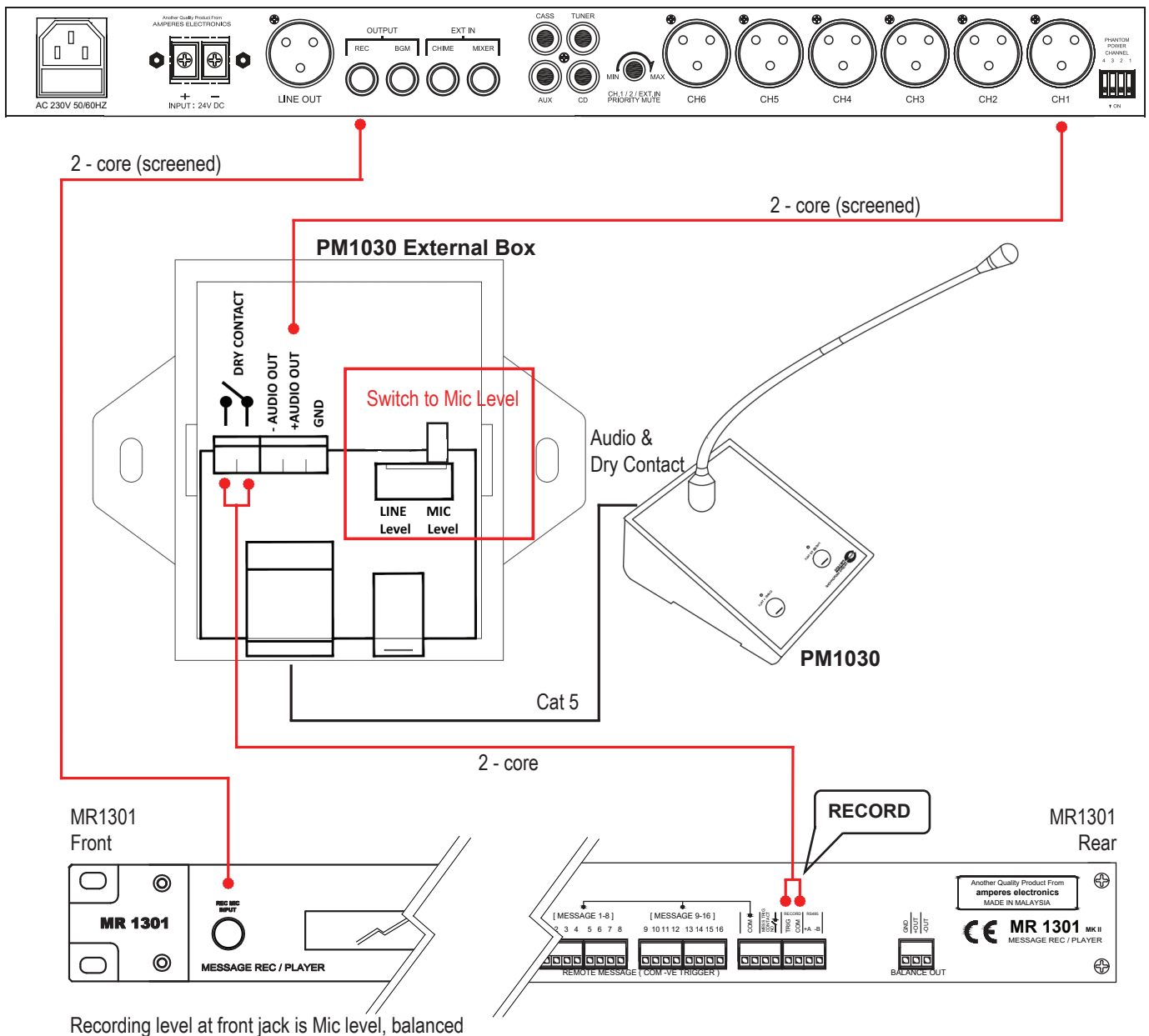
Example, a fire sensor is activated and the BAS pick up the distress signal, it then provides a close contact, which is then required to mute normal BGM through EP1200. In the same time, activate a warning message via MR1301. The message shall be repeated until inspection is done and distress status is removed.

# Connecting the Unit

## Option D : Using MR1301 for audio recording

Below schematic utilise PM1030 paging mic as the source of speech. The mic comes with an external box. Connect the box's dry contact to MR1301 rear RECORD port. When paging start, the dry contact activate the recording and stop the recording when paging is ended. Speech audio is sending to MX2222 mixer amp. It is then received and recorded by MR1301 via front mic input.

MX2222



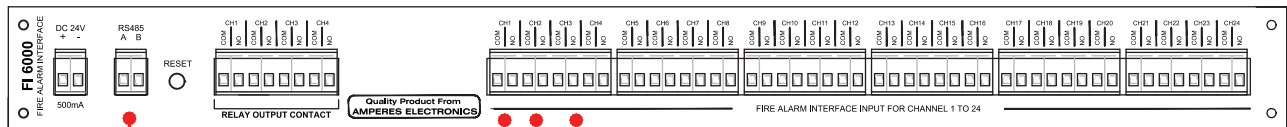


# Connecting the Unit

## Option E : Fire alarm emergency announcement

MR1301 can work with Fire Alarm Interface, FI6000, to auto activate emergency announcement. Both devices communicate via RS485 interface. The FI6100 can be configured such that when a triggering of fire alarm sensor is detected, it will activate MR1301 to broadcast messages that assigned to a message key. Multiple MR1301 can be connected to FI6100 in common bus topology provided each unit are configured with unique device address.

### FI6100

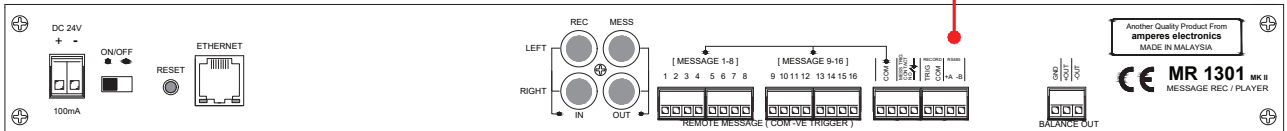


Fire Alarm Sensor

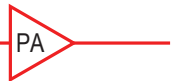
2 - core

Data

### MR1301

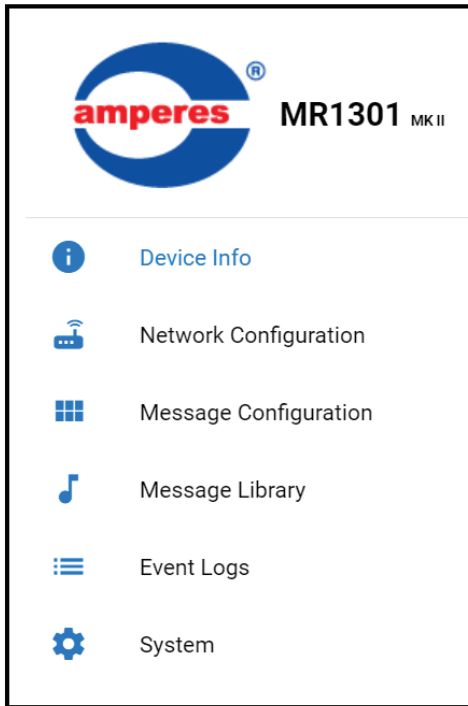


Emergency Announcement Audio



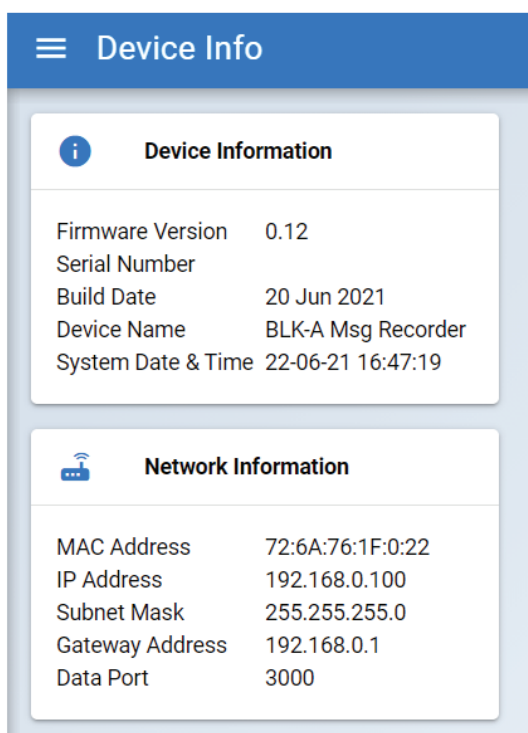
# Device Setup

We can configure MR1301 device setup using a web browser (Chrome / MS Edge). Open a browser and enter MR1301 IP address. We shall be able to access the configuration menus. The default IP address is 192.168.0.100. Default username and password are both “ admin”.



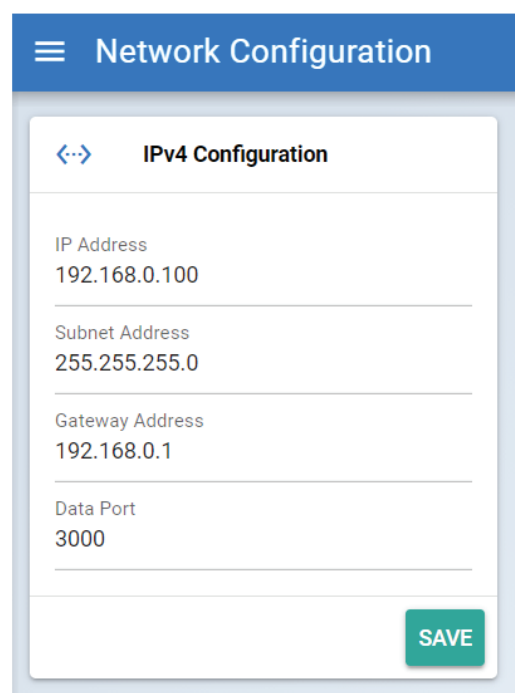
## Device Info

Information such as firmware version and networking addresses are shown here. No configuration is needed in this page.



## Network Configuration

Edit MR1301 IP address, subnet address and gateway address here to suit your networking environment. It is recommended to leave the data port number unchanged. Click the 'SAVE' button to save your changes.



# Device Setup

## Message Configuration

Index	Message	Repeat	Action
1	Message Chime	0	✖
2	Delay (Seconds) 5		✖
3	Message	0	✖

This page allows us to assign messages to all 16 message keys. Each MSG KEY # here is corresponding to one of the front panel message keys and rear panel external message trigger ports.

Click **ADD MESSAGE** to select a message from a drop down menu. A messages must be pre uploaded to Message Library before it could appear in the menu. We can assign more than one message to a message key. The sequence of playing follow top to bottom of the playlist.

The  setting allow us to configure number of times we wish a message to be played. Set the value to 0 if we only want a message to play once.

To remove a message from the playlist, click .

The **ADD DELAY** button allow us to insert a delay between 2 messages or before start playing a message.

Remember to click **SAVE** to save any changes made.

# Device Setup

**1. Original position of messages**

1	Message ChimeDown		Repeat 0	✕
2	Delay (Seconds) 5			✕
3	Message ChimeUp		Repeat 0	✕

**2. Drag-n-Drop "ChimeDown" to third position**

2	Delay (Seconds) 5			✕		
3	Message ChimeUp		Repeat 0	✕		
1	Message ChimeDown	1	Message ChimeDown	Repeat 0	Repeat 0	✕

**3. Drag-n-Drop "Delay" to second position**

2	Message ChimeUp			Repeat 0	✕
1	Delay (Seconds) 5	1	Delay (Seconds) 5		✕
3	Message ChimeDown			Repeat 0	✕

**4. New position of messages**

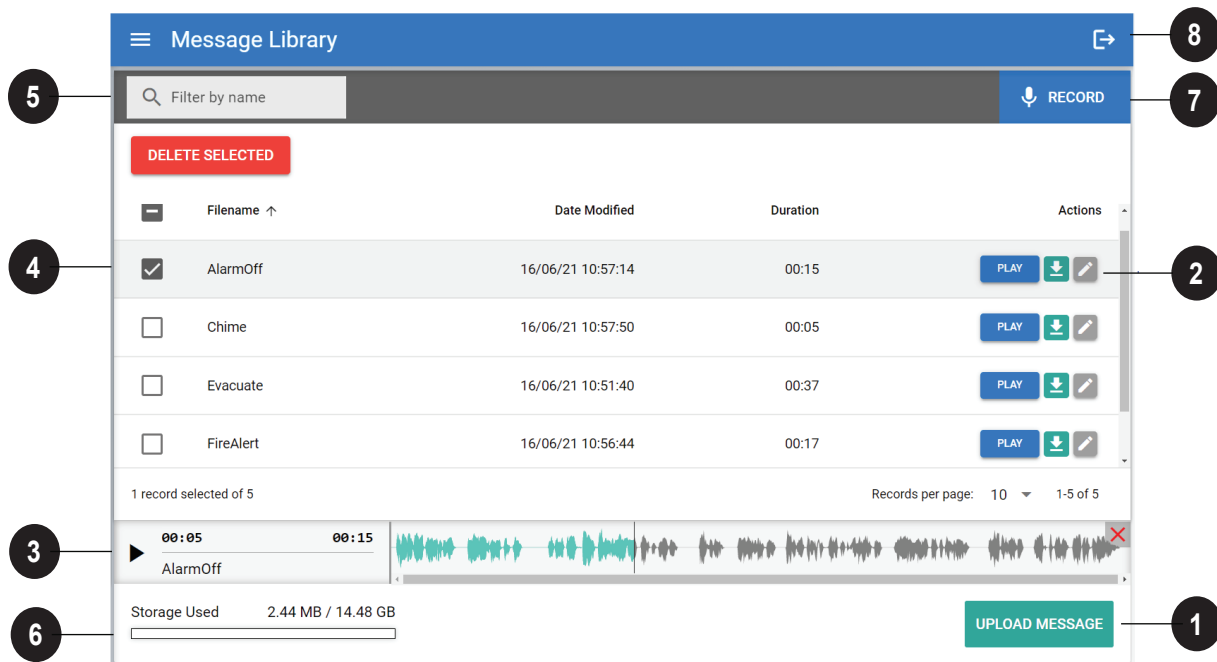
1	Message ChimeUp			Repeat 0	✕
2	Delay (Seconds) 5				✕
3	Message ChimeDown			Repeat 0	✕

## Messages Playback Sequence

Figure above shows a drag-n-drop way of rearranging messages/ delay position to adjust the playback sequence.






# Device Setup

## Message Library



Before assigning a message to a message key we need to upload the message from our PC or phone storage to MR1301 memory bank.

Message Library allows us to perform file uploading, downloading, rename, playback and even record a fresh message.

- 1. UPLOAD MESSAGE** : Click this button to upload a media file to Message Library. The media file can be .wav or .mp3 file. MR1301 will convert the file to MP3 format before save it into its internal memory bank.
- 2. PLAY, Download, Rename** : The PLAY button allow us to listen to a media playback via our PC or mobile phone. Click the  button if we wish to save a recorded message or any message from MR1301 memory to local PC or phone storage. Click the  button if we want to rename a message file name.
- 3. Media Player** : Click the  button will invoke a media player. We can then control a message playback via this player.
- 4. Check Box** : To delete message(s), check this box and click the  .
- 5. Filter** : To ease of searching a message file or a group of files that contain the same specific key word, type the key word here to allow us quickly access to the files.
- 6. Storage Bar** : Show the SD card storage available to store message files.
- 7. Record** : we can activate a recording or stop a recording using  button.
- 8. Log Out** : Click this button will bring the browser to MR1301 login page.

# Device Setup

## Event Logs

Event Date Time	Source	Message ID
17- 5-21 17:16:40	Message Keys	5
18- 5-21 11:50:51	Remote Trigger	16
18- 5-21 11:56:05	Message Keys	1
18- 5-21 11:56:39	Remote Trigger	16
18- 5-21 11:56:40	Message Keys	8
18- 5-21 11:56:42	Message Keys	8

Event log records below activities :

- Power on
- Message activation via front message key or rear remote trigger port
- Message deactivation via front message key or rear remote trigger port

Recorded log is saved in the internal micro SD card under a “sys” folder

## Audio Cofiguration

Adjust playback volume and EQ settings here

The screenshot shows the 'Audio Configuration' screen. On the left, there is a 'Volume' slider set to 80%. On the right, there is a '5 Band Equalizer' with five frequency sliders, each set to 0 dB. The frequency labels at the bottom are 100\_Hz, 250\_Hz, 1k\_Hz, 4k\_Hz, and 10k\_Hz. A green 'SAVE' button is located at the bottom right of the interface.

## Unit Configuration

**Device Name :** Give the unit a meaningful device name. E.g. BLK-A Msg Recorder. The name will be shown up in Device Info Page.

**Device Address :** In order for Fire Alarm Interface, FI6000, to activate MR1301 messaging via RS485 interface, the device address configured here must match with address configured in FI6000 configurator. Valid address range is 1 to 255.

**LCD Backlight Timeout :** Pressing any front panel button or activate a message via rear panel will turn LCD back light on. This setting determines the lit time of the back light. The light will go off when the time elapses.

**Button Debounce :** The lower this debounced time is, the more sensitive the front panel button is when subjected to a pressing.

**Remote Trigger Debounce :** The lower this debounced time is, the more sensitive the rear trigger port is subjected to a trigger. Suggest not to set the setting too low to avoid false triggering.

**Remote Trigger Pulse Timeout :** We can either remotely activate a message playback via a momentary contact or a latch contact. A contact is considered momentary if its activation time is shorter than this Timeout. A latch contact on the other hand has its activation time longer than this Timeout.

**Example 1,** configure the Remote Trigger Pulse Timeout to 8 sec. Activate a momentary contact to activate a playback. In less than 2 sec, release the contact, the playback will keep going. Activate and release the contact again in less than 2 sec, this will stop the playback.

**Example 2,** configure the same 8 sec timeout. Activate a latch contact, this activates the playback. Release the contact 10 sec later. This will immediately stop the playback.

The screenshot shows a web interface for 'System' configuration. The title is 'System' with a hamburger menu icon. Below it is a section titled 'Unit Configuration'. The form contains the following fields:

- Device Name: BLK-A Msg Recorder
- Device Address: 1
- LCD Backlight Timeout (s): 10
- Button Debounce (ms): 100
- Remote Trigger Debounce (ms): 250
- Remote Trigger Pulse Timeout (s): 8

A green 'SAVE' button is located at the bottom right of the configuration area.

# Device Setup

## System Date & Time

There are 3 ways to configure the system date and time.

### 1) Sync with local Host

Tick the Sync check box and click SAVE. This set the MR1301 date and time to follow local PC or mobile phone that used for accessing the MR1301.

The screenshot shows the 'System Date & Time' configuration page. The 'Sync with NTP Server' checkbox is unchecked. The 'Date & Time' field shows '28/06/2021 17:45:24'. A 'Sync' button with a clock icon is visible. A green 'SAVE' button is at the bottom right.



### 2) Sync with NTP Server

If MR1301 is connected to LAN that with internet access we can select this option to sync up the date and time with a Network Time Protocol server which is with IP address 128.199.77.92. Configure the time zone according to our location. MR1301 will attempt to sync up the time during power up and once every 24 hours. Remember to configure the Gateway Address (under Network Configuration) to our router IP address in order for MR1301 to have internet access.

The screenshot shows the 'System Date & Time' configuration page. The 'Sync with NTP Server' checkbox is checked. The 'NTP Server IP Address' is '128.199.77.92'. The 'Timezone' is set to '(GMT +8:00) Beijing, Perth, Singapore, Hong Kong, Malaysia'. The 'Date & Time' is '02/07/2021 13:00:24'. A green 'SAVE' button is at the bottom right.

The screenshot shows the 'IPv4 Configuration' page. The 'Gateway Address' field is highlighted with a red box and contains the value '192.168.0.1'. Other fields include 'IP Address' (192.168.0.100), 'Subnet Address' (255.255.255.0), and 'Data Port' (3000). A green 'SAVE' button is at the bottom right.

### 3) Manually configure Date & Time

Click the  to configure date and  to configure the time. Click SAVE to save the changes.

The screenshot shows a calendar interface for the year 2021. The current date is 'Mon, Jun 28'. The calendar grid shows the days of the month, with the 28th highlighted. A 'CLOSE' button is at the bottom right.

The screenshot shows a circular time picker interface. The current time is '17:50'. The hour hand is pointing to 17 and the minute hand is pointing to 10. A 'CLOSE' button is at the bottom right.



# Device Setup

## Authentication

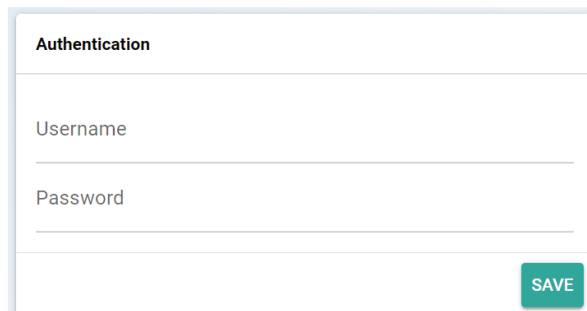
The default username and password for web access are both "admin". User can alter the authentication here.

### Update Firmware

Run a features upgrade or system fixes here if there is a new firmware available. Details please refer to Firmware Update section.

### Backup & Restore

Backup, restore or reset system settings. Details please refer to Backup & Restore section.

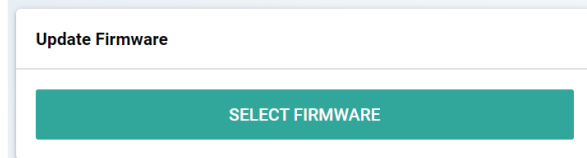


Authentication

Username

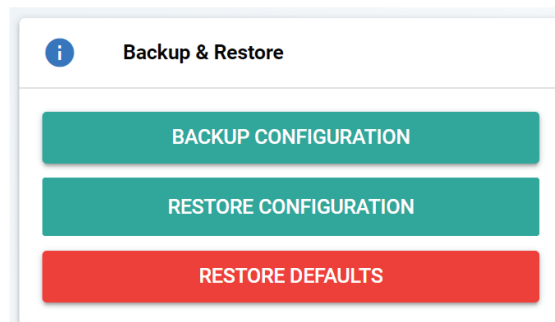
Password

SAVE



Update Firmware

SELECT FIRMWARE



Backup & Restore

BACKUP CONFIGURATION

RESTORE CONFIGURATION

RESTORE DEFAULTS

## Backup & Restore

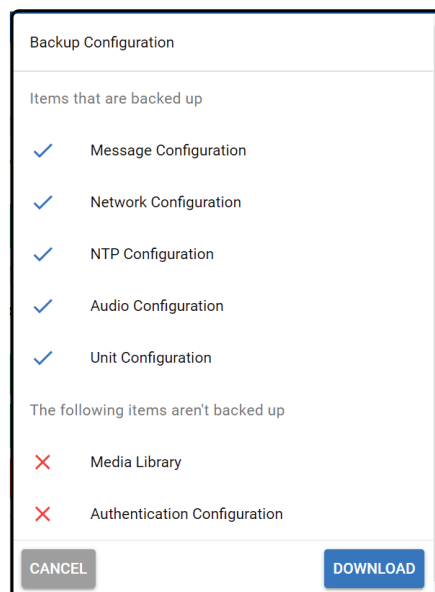
This section allows us to save MR1301 settings and restore it when necessary.

### Backup Configuration

System settings under Message, Network, NTP and System Configuration can be saved in a MR1301\_DD-MMM-YY.config file and restore to the unit when necessary. This backup excludes media files and event log stored in the internal micro SD card. Authentication under System configuration is excluded as well.

### Restore Configuration

Click the RESTORE CONFIGURATION button and locate a MR1301\_DD-MMM-YY.config that is previous back up using BACKUP CONFIGURATION. We can select configurations to be restored by ticking the check boxes (refer picture on the right) The restore does not make changes to message media files, event log and user authentication configuration.



Backup Configuration

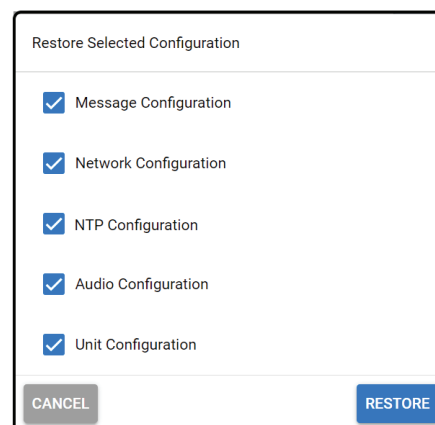
Items that are backed up

- Message Configuration
- Network Configuration
- NTP Configuration
- Audio Configuration
- Unit Configuration

The following items aren't backed up

- Media Library
- Authentication Configuration

CANCEL DOWNLOAD



Restore Selected Configuration

- Message Configuration
- Network Configuration
- NTP Configuration
- Audio Configuration
- Unit Configuration

CANCEL RESTORE

# Device Setup

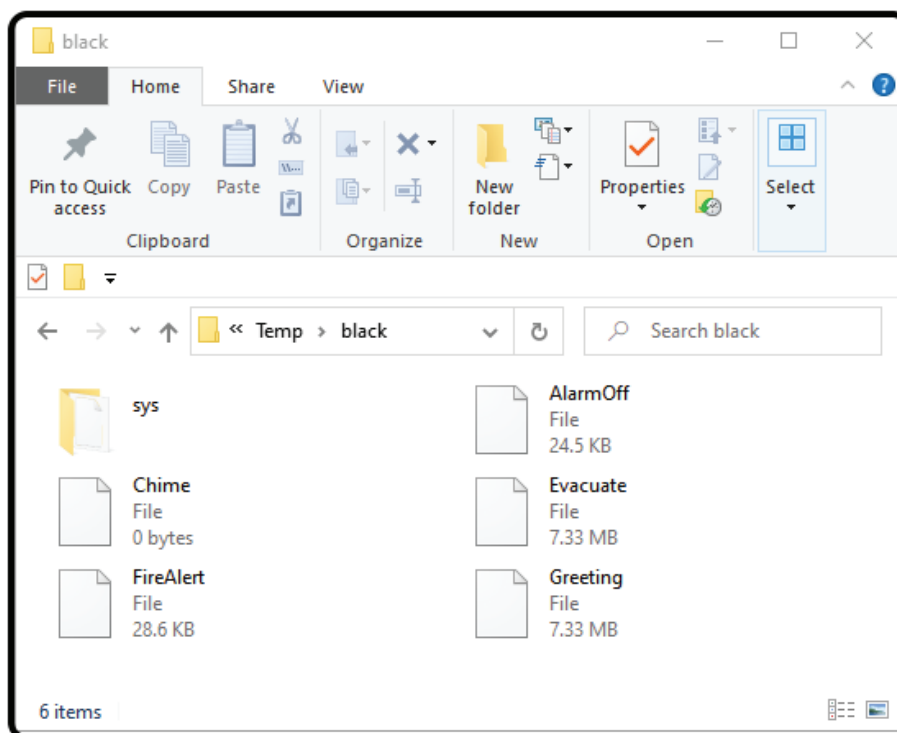
## Backup & Restore

### Backup and Restore Media Files and Event Log

Message media files and event log are saved in MR1301 internal micro SD card. To back up these files, turn off the power, remove the casing top cover. Locate the micro SD card slot, press and pull out the SD card. Put the card in a micro SD card reader and copy all the content of the card to a local PC.

The files can be restored by copy to a new SD card. To clone one MR1301 content to another unit, make sure we also back up and restore the configurations ( refer to RESTORE CONFIGURATION section) to the new unit such that message keys assignment are also restored.

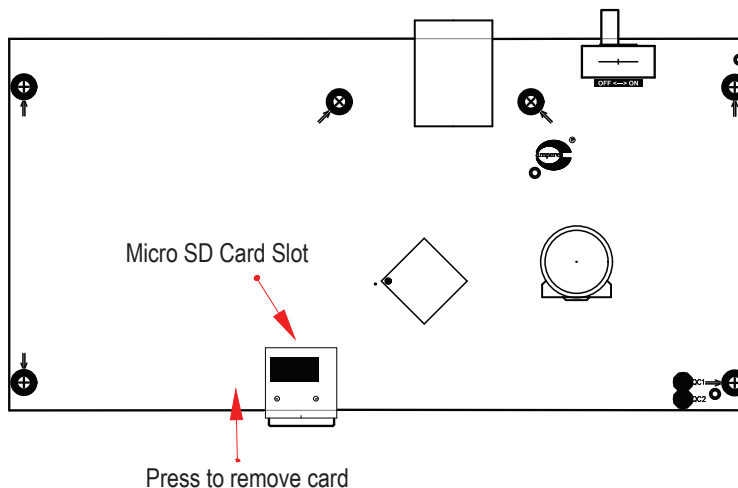
View micro SD card content using a card reader and PC



### Restore Defaults

RESTORE DEFAULTS will reset most of the configurations to system default settings. This includes remove all the message keys assignment under Message Configuration, reset IP address to 192.168.0.100, reset username and password to "admin". Anyway below settings and files are remain intact.

- Message Library
- Media files
- Event log
- System date and time

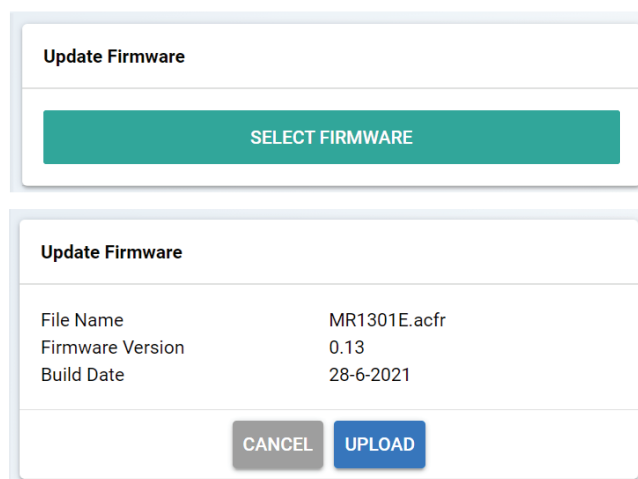


# Firmware Update

System firmware shall be updated once in a while when new features are available or to fix bugs. There are 2 methods of doing;

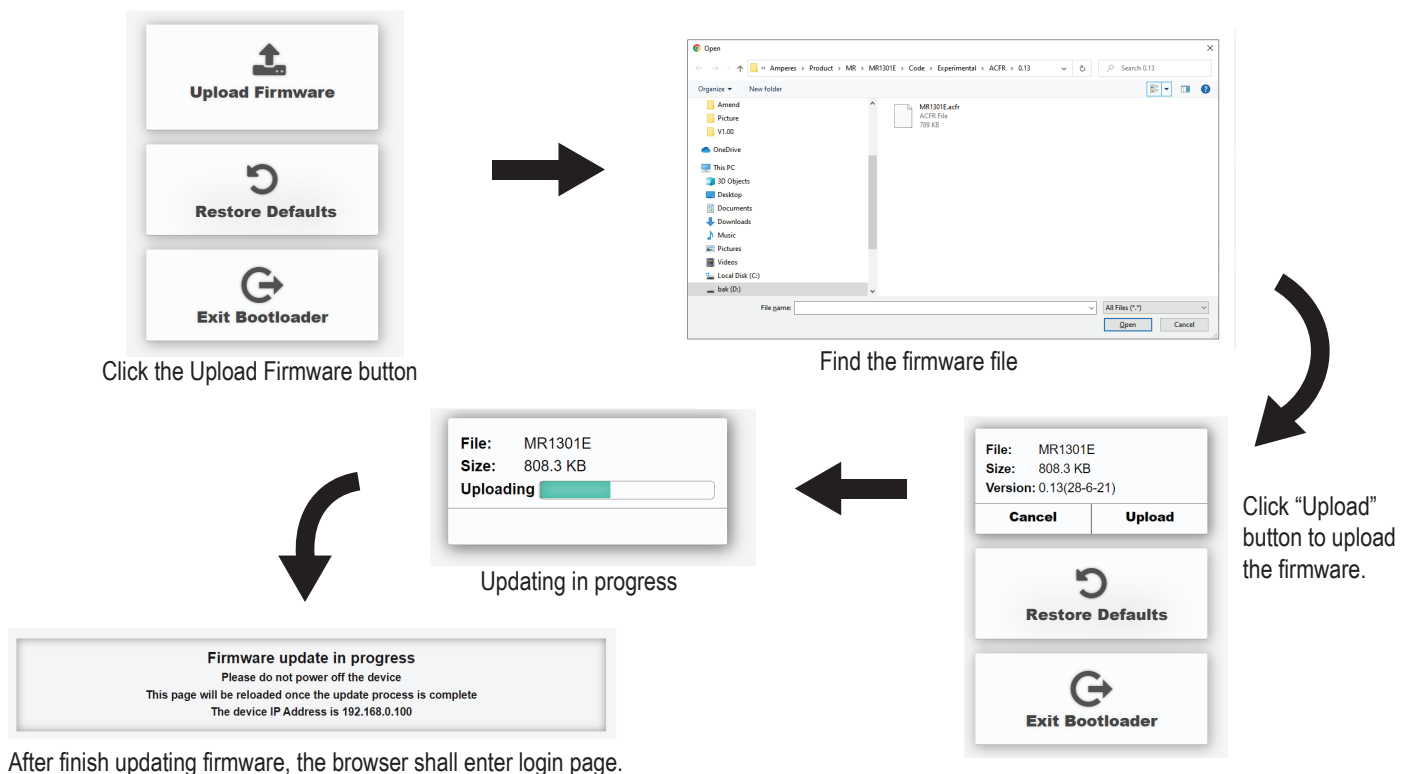
## Update firmware in Normal Operation Mode

1. Open a browser and type in the MR1301 IP address.
2. Under "System" page look for "Update Firmware" section as shown in below.
3. Click "SELECT FIRMWARE" and choose a binary file with ".acfr" extension.
4. Click "UPLOAD".
5. Once the update is completed, the browser shall enter the login page.



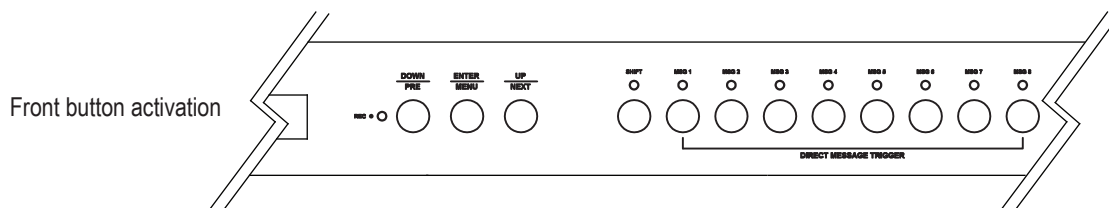
## Update firmware in Bootloader Mode

1. Turn off the power. Hold the rear RESET button then turn on the power. When the LCD shows "MR1301 MK II Bootloader", release the RESET button. MR1301 is now enter Bootloader mode.
2. Open a browser and enter the MR1301 IP address, a web page as shown below shall appear.
3. Select "Upload Firmware", choose a binary file with ".acfr" extension and click "Upload".
4. Once the uploading is completed, the browser shall automatically exit the Bootloader mode and enter the login page.



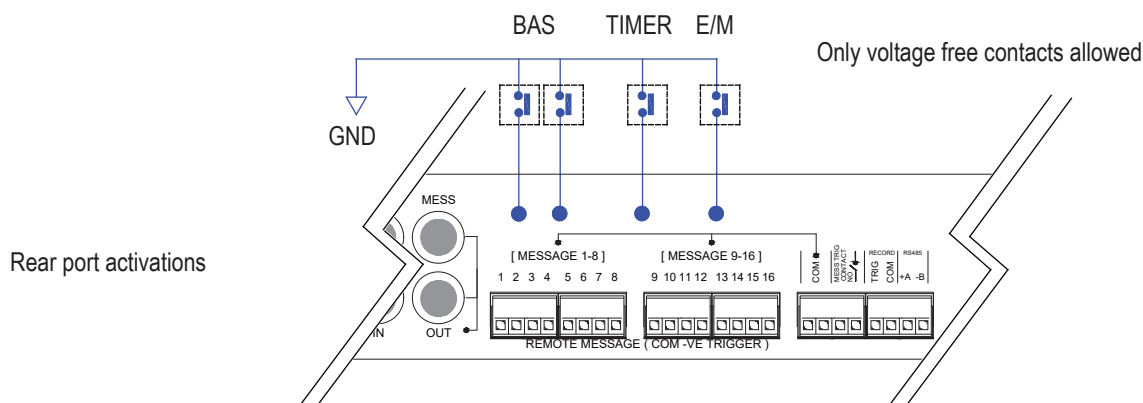
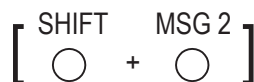
# Message Playback

Message files can be played by activate the front MSG KEYS (Message 1 to 16) or via the rear REMOTE TRIGGER PORTS



For message 9 to 16, press shift + the required button to trigger the message.

E.g: To activate Message 10, press SHIFT+ MSG 2



Activation via rear port can be from any external device or system providing a voltage free contact.

To activate a message, the relevant port shall be grounded and the type of activation can be either momentary or latch contact.

For momentary contact (pulse), a close circuit will activate the message, and while the message is being played, another incoming pulse shall deactivate the announcement.

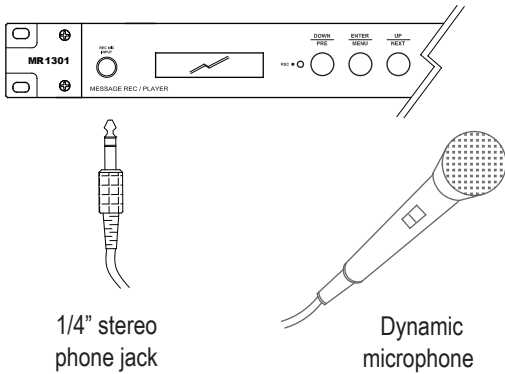
In cases where a latched contact is provided, the message will be played for as long as the contact remains closed circuit.

Lower number message key has the higher playback priority. The same rule applied to rear remote trigger ports.

# Recording

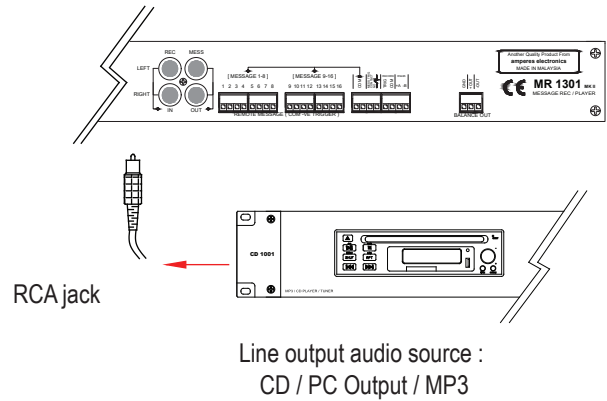
Message recording is MP3 encoded and saved in an internal micro SD card. There are 2 options to connect a recording source to MR1301.

## Option A : Direct voice recording



Recording using dynamic microphone through front panel phone jack.  
( Mic level, balanced signal )

## Option B : Recording via external player



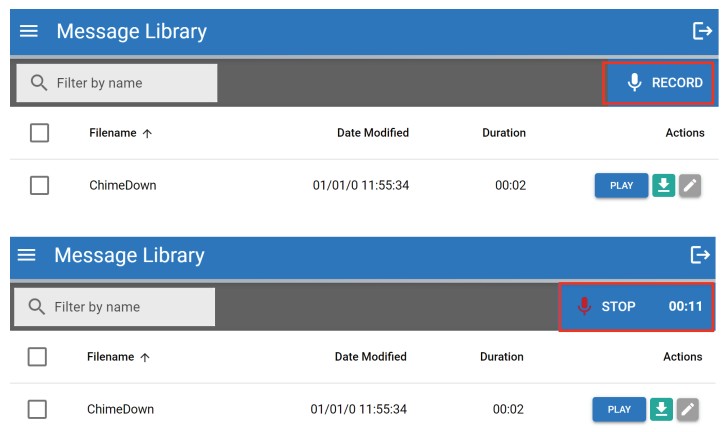
Recording using external line audio source with RCA jack at rear of the unit

## Start and Stop a Recording

There are 3 ways to start and stop a recording

### 1. Recording via web browser

The RECORD button in Message Library page allow us to start a recording. The button change to STOP button for us to click and stop the recording. Recorded file will be shown in Message Library.

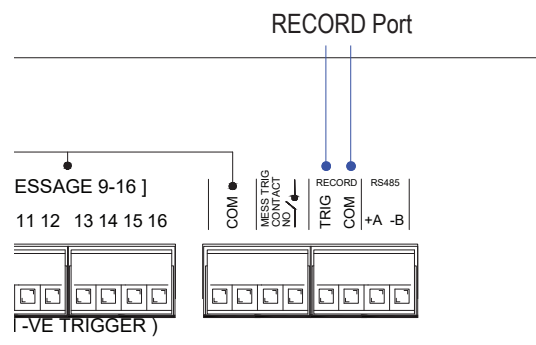


### 2. Recording via RECORD port

Make contact on the TRIG and COM to start a recording. Release the contact to stop the recording.

### 3. Recording via LCD Menu

Please refer to LCD Menu section



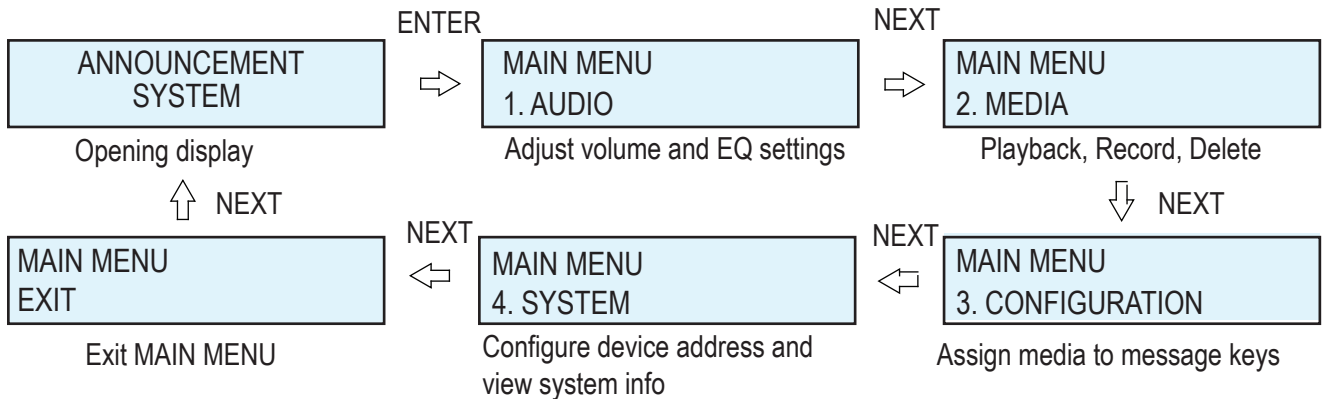
The recording length per message is 1 hour. Once a recording hit the 1 hour limit, MR1301 shall auto stop further recording until user starts another new recording session. Message recording quality is best for voice but less favourable for music. For music audio, It is recommended that we perform a direct media file uploading via Message Library.

# LCD Menu - Adjust Volume and EQ

Besides web browser, the LCD menu is an alternate way to configure some of the MR1301 settings, view the settings, perform playback and more. The menu consists of a MAIN MENU and various sub menus. Three front panel buttons, i.e. ENTER (or MENU), PRE (or DOWN), NEXT (or UP) are used for menu navigation and make changes to the menu settings.

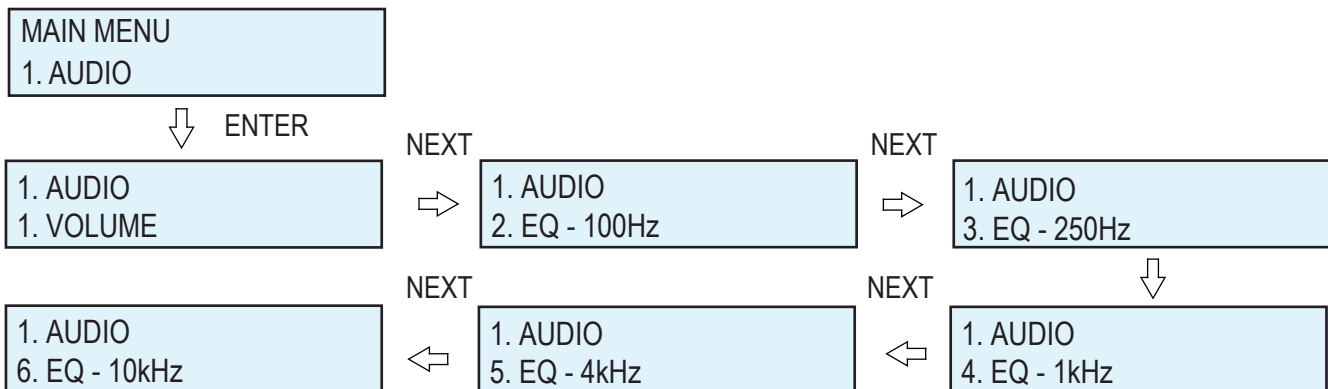
## MAIN Menu

Under MAIN menu there are AUDIO, MEDIA, CONFIGURATION, SYSTEM sub menus.



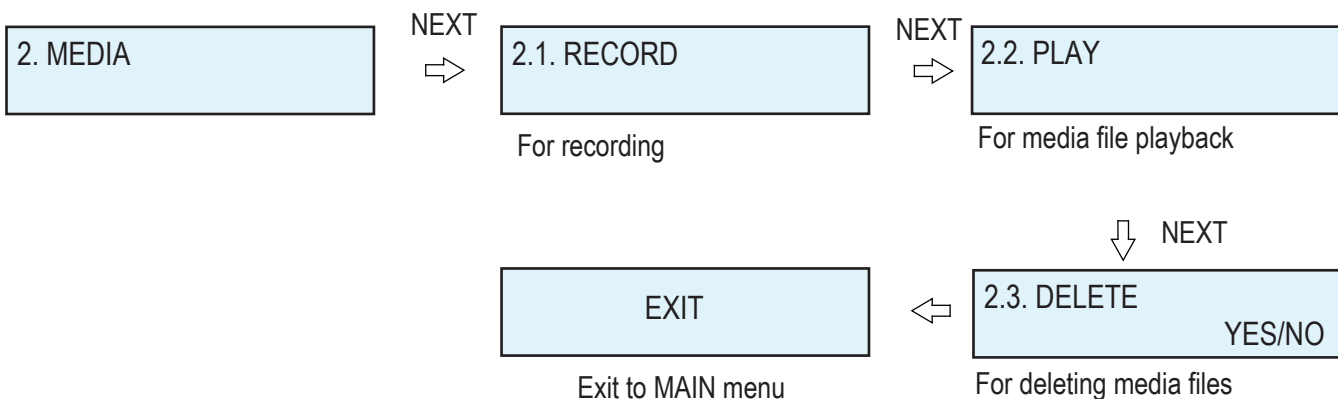
## 1. AUDIO Menu

Change playback volume and EQ level. Below shows settings under AUDIO menu. Changing the volume/EQ level is straight forward. Press ENTER to get into the settings and use UP/DOWN button to increase/decrease level. ENTER again to accept the changes. Remember to SAVE & EXIT after making changes.



## 2. MEDIA Menu

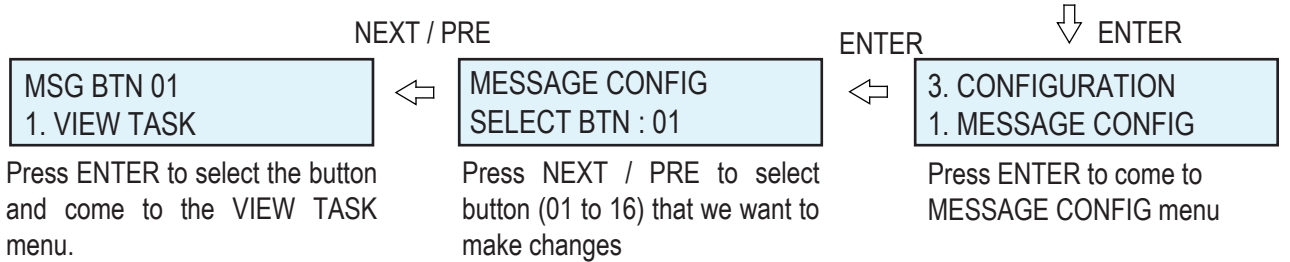
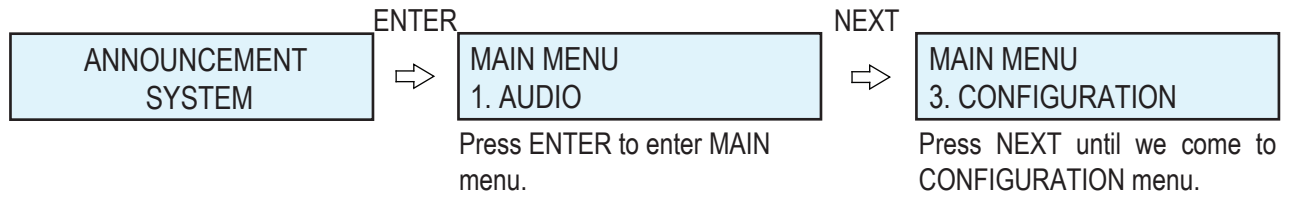
There are RECORD, PLAY and DELETE sub menus under MEDIA menu Refer to next section on how to perform all these 3 actions.



# LCD Menu - Message Configuration

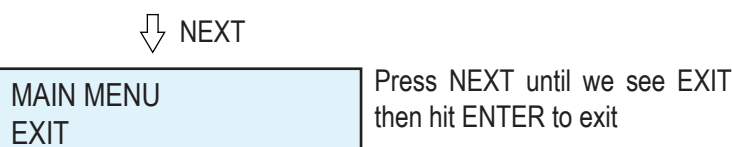
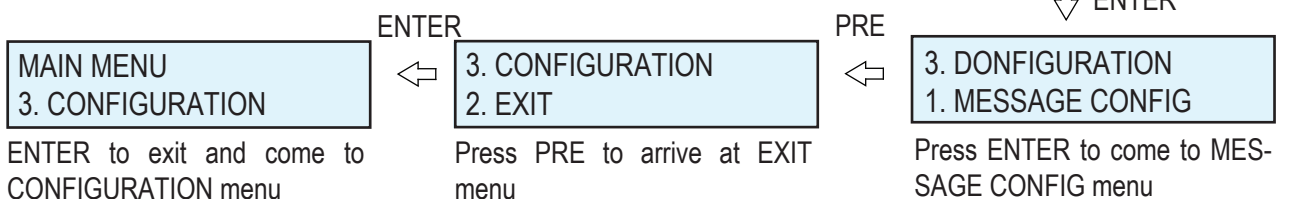
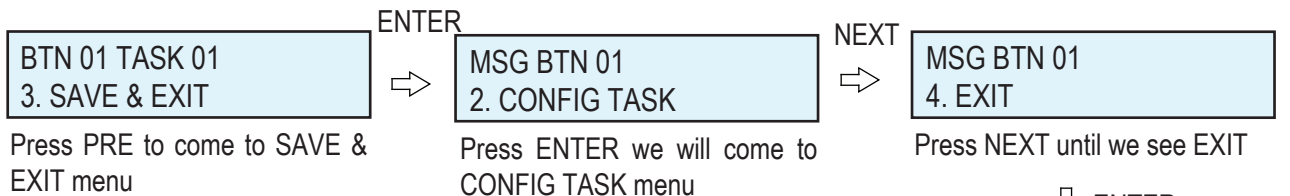
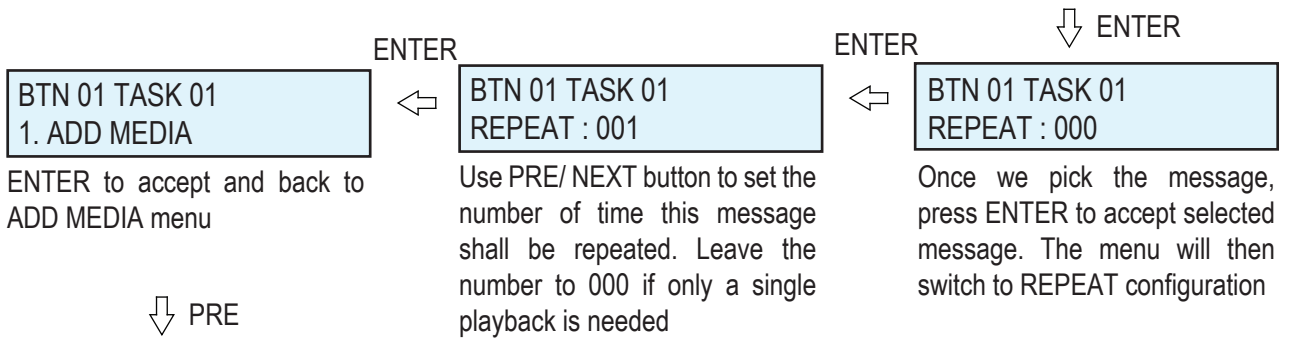
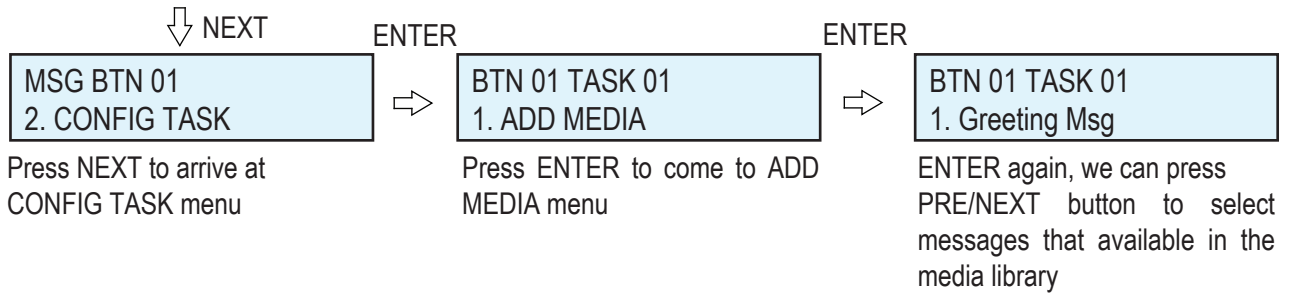
## 3. CONFIGURATION Menu

We can assign a message to a message key, add delay or view the key tasks in this menu. Below show an example



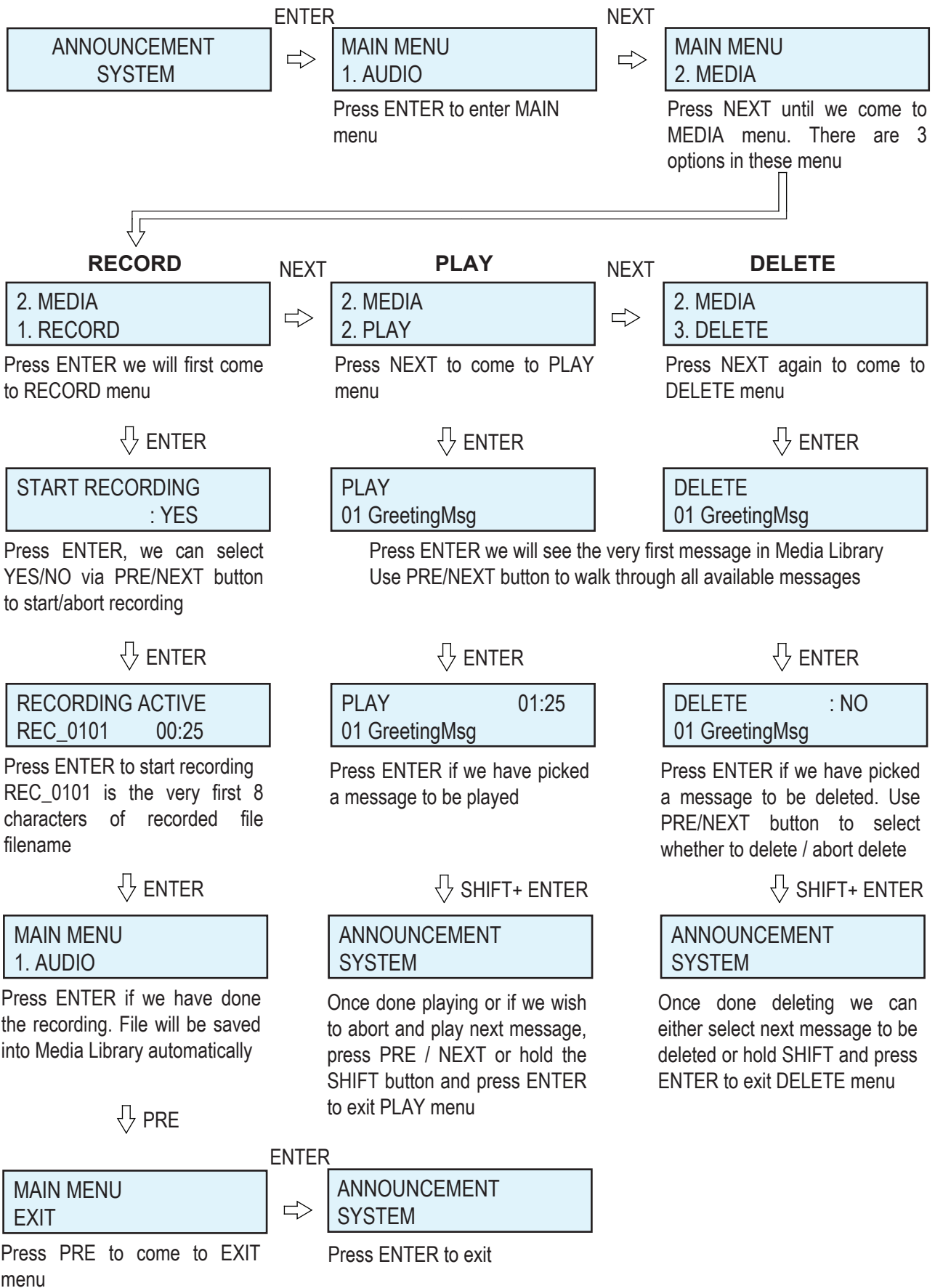
Press ENTER to select the button and come to the VIEW TASK menu.

We can ENTER to view messages that already assigned or go to next step to assign new message



# LCD Menu - Record, Play and Delete Message

Below steps illustrate how to perform recording, playing and deleting message via LCD menu



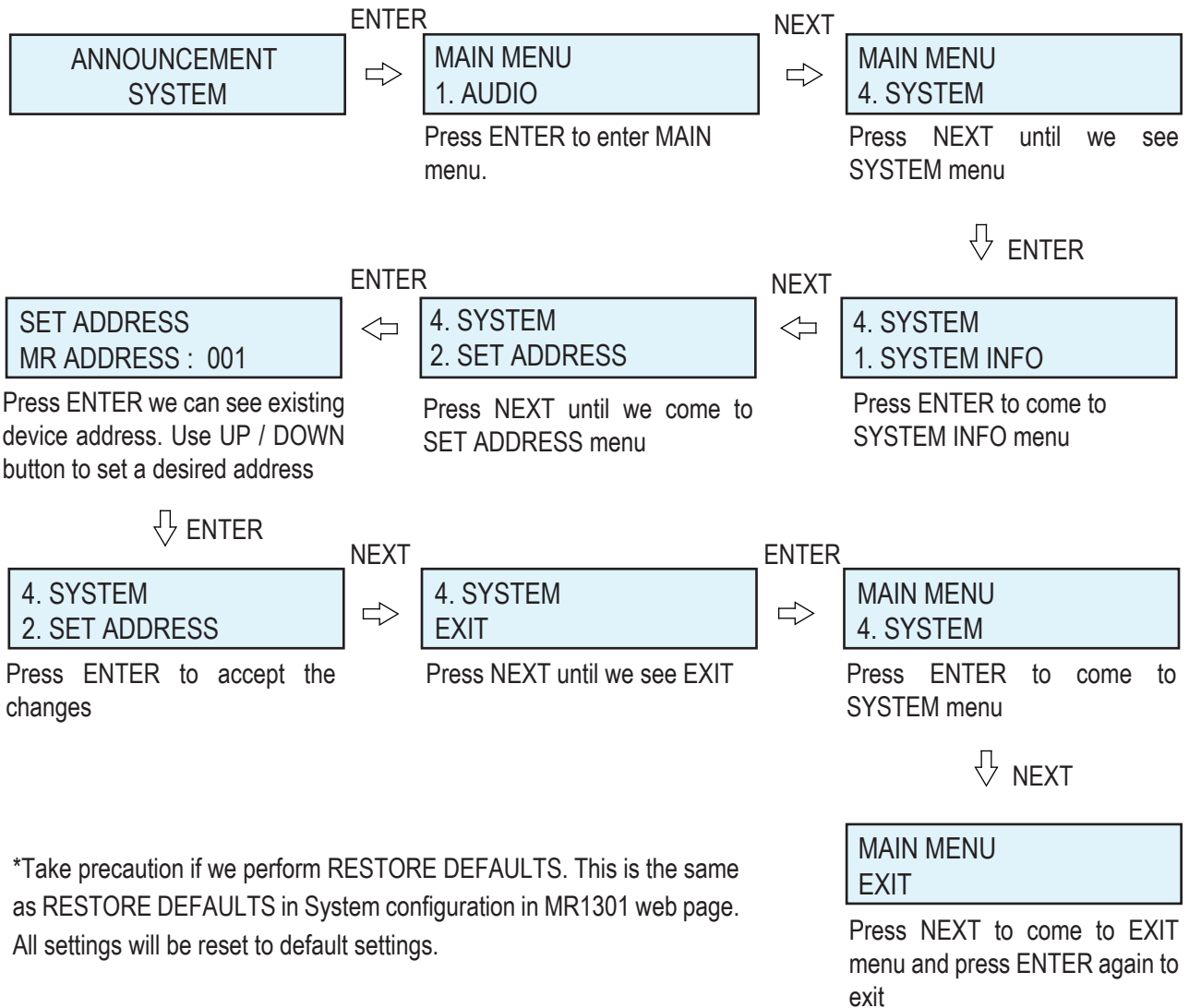


# LCD Menu - View System Information

## 4. SYSTEM Menu

This menu allows us to view networking addresses, check out the firmware version, configure the device address as well as restore to \*factory default settings.

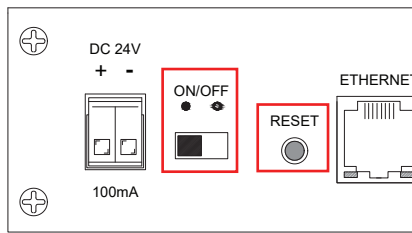
Below is an example of changing device address.



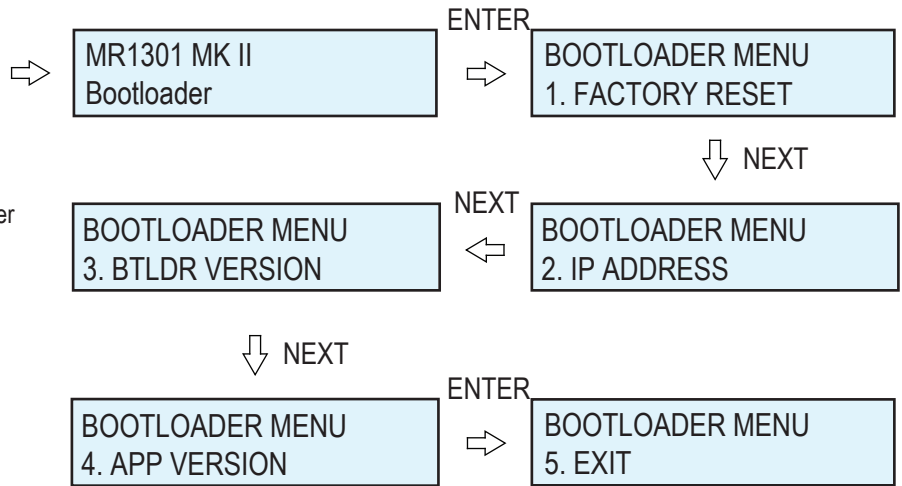
\*Take precaution if we perform RESTORE DEFAULTS. This is the same as RESTORE DEFAULTS in System configuration in MR1301 web page. All settings will be reset to default settings.

# LCD Menu - Bootloader Mode

Bootloader mode allows us to restore MR1301 configuration to factory default settings, check the IP address and view firmware version. Below show how to enter bootloader mode and navigate the available menus. Press ENTER to enter any menu that we are interested, the steps are straight forward.

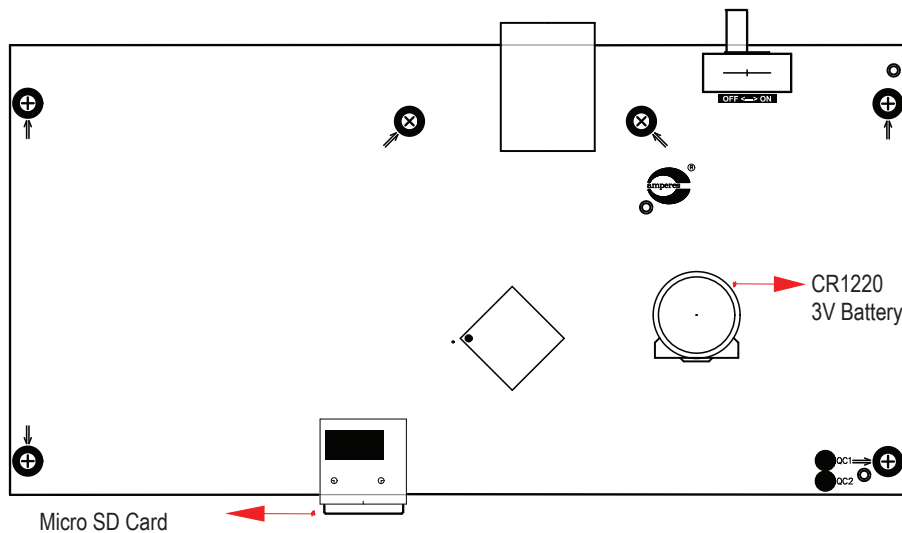


Turn off power > Hold RESET button > Turn on power to enter Bootloader mode



\*Take precaution that FACTORY RESET will change the networking addresses, message keys media assignment and all system settings to factory default settings. Media Library and Event log will also be cleared.

# Maintenance



## MR1301 Controller

All messages and event log are stored in an internal micro SD card. The SD card must be inserted all the time in order for MR1301 to operate normally.

A CR1220 3V battery keeps the MR1301 date and time running accurately. Replace the battery if the battery voltage drop below 2.2V.

## Summary of Features

- 32 bit ARM chip for faster and multitasking processing of data
- Up to 16GB of memory space using Micro SD card
- Web interface configuration via PC or mobile phone
- Message playback via front direct access button and rear remote triggering
- MP3 encoded recording
- Flexible message configuration eg. Multiple files in a single button
- Priority message playback with dry contact activation
- Playback controls ie. Volume, 5 bands EQ
- RS485 output with PC link for remote monitoring or using iPX5500 UART-IP converter for monitoring and control via LAN. ( Application software : PMX II LAN )

## Technical Specifications

Operating Voltage	24V DC
Power Consumption (DC)	
Idle	1.7W
Active	2.4W
Current Consumption (DC)	
Idle	70 mA DC
Active	100 mA DC
Data Connection	
RS485	2-way mini phoniex
LAN	RJ45 (10/100 Base-T)
Inputs	Line input: unbalanced via RCA jack Front Mic in : Mic level balanced
Processor	32 bit ARM
Message trigger	16 front and rear message
Playback format	MP3, WAV
Voice recording	MP3 1 hour per message
Delay set up in playback	Yes
Priority message cut	Yes
Software interface	Google Chrome, MS Edge
Remote view / control	Yes
Indicators	LED at switches, LCD display
Memory	MicroSD (up to 16 GB)
Battery	CR1220 3V
Dimension	482 x 44 x 180 mm
Weight	2 kg

# Warranty Conditions

Only Amperes Electronics Service Centres are allowed to make warranty repairs : a list of Amperes Electronics Service Centres may be asked for by the purchaser or send directly to Amperes Electronics Sdn Bhd at 70 Jalan Industri PBP 3, Tmn Perindustrian Pusat Bandar Puchong, 47100, Puchong, Selangor, Malaysia or its authorized dealers. This warranty is not valid if repairs are performed by unauthorized personnel or service centres.

This warranty covers only repairs and replacement of defective parts ; cost and risks of transportation as well as removal and installation of the product from the main system are for the account of the purchaser. This warranty shall not extend to the replacement of the unit.

This warranty does not cover damages caused by misuse, neglect, accident of the product as well as using the product with power supply voltage other than shown on the product, or any other power supply source / adaptor not recommended by the manufacturer.

This warranty does not cover damages caused by fire, earthquakes, floods, lightning and every cause not directly related to the unit.

This warranty does not include any indemnity in favor of the purchaser or the dealer for the period out of use of the unit; moreover the warranty does not cover any damages which may be caused to people and things when using the product.

This warranty certificate is valid only for the described product, and is not valid if modifications are made on this certificate or on the identification label applied on the product.

This warranty covers all the material and manufacturing defects and is valid for a period of 36 months from the date of purchase or for a specified period in countries where this is stated by a national law. In this case, the extension is valid only in the country where the product is purchased.

Amperes Electronics Sdn Bhd is not obliged to modify previously manufactured products under warranty if the design changes or improvements are made.

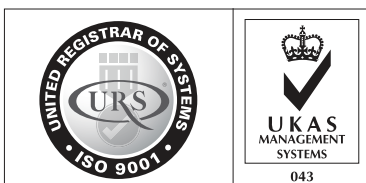
# Disclaimer

Information contained in this manual is subject to change without prior notice and does not represent a commitment on the part of the vendor. AMPERES ELECTRONICS SDN BHD shall not be liable for any loss or damages whatsoever arising from the use of information or any error contained in this manual.

It is recommended that all services and repairs on this product be carried out by AMPERES ELECTRONICS SDN BHD or its authorized service agents.

AMPERES series must only be used for the purpose they were intended by the manufacturer and in conjunction with this operating manual.

AMPERES ELECTRONICS SDN BHD cannot accept any liability whatsoever for any loss or damages caused by service, maintenance or repair by unauthorized personnel, or by use other than that intended by the manufacturer.



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