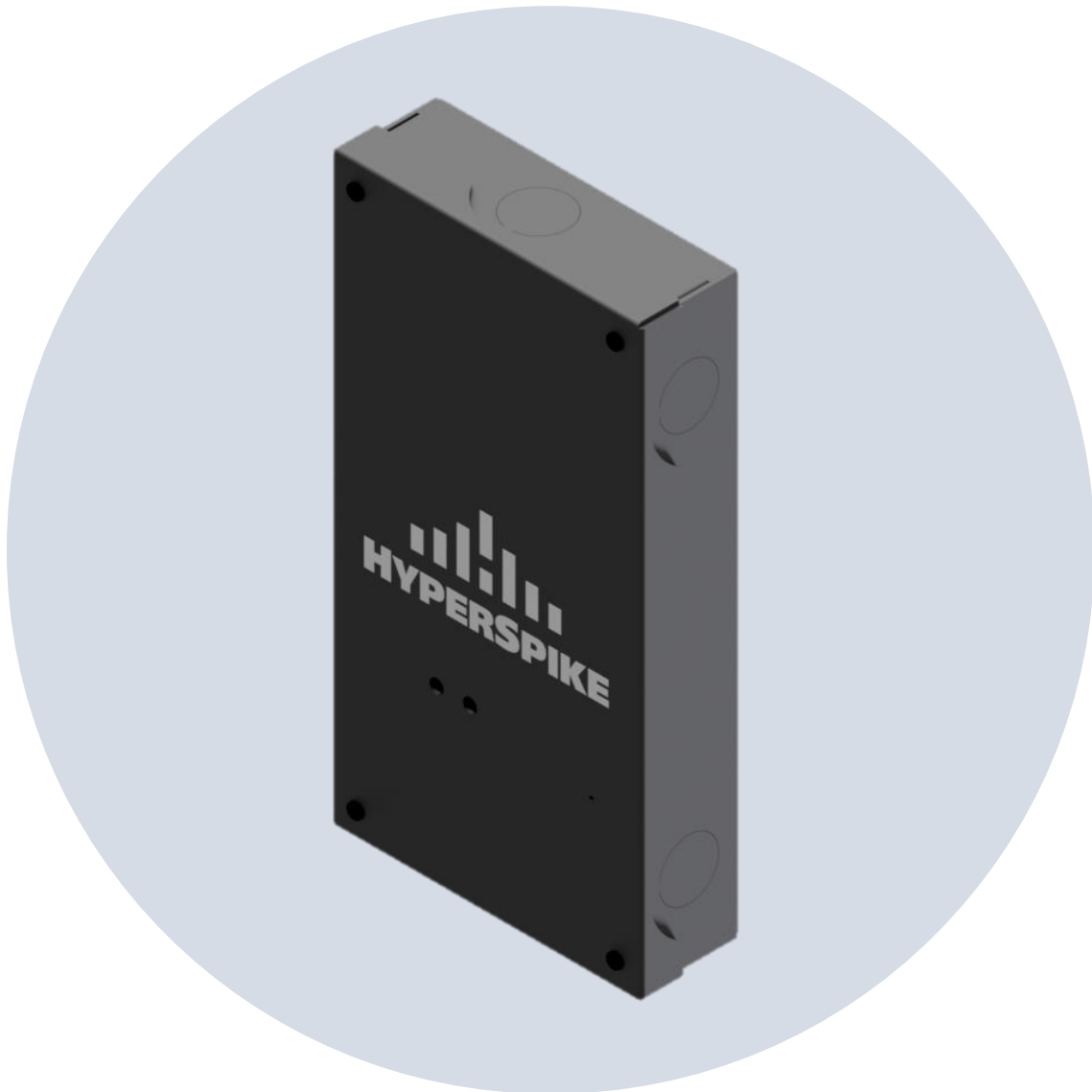




Installation and Maintenance Manual

HyperSpike[®] MPA-400



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IMPORTANT

The HyperSpike MPA400 contains parts and assemblies susceptible to damage by electrostatic discharge (ESD). Use proper grounding techniques when working in the module.

1. OVERVIEW

1.1 Compatibility

The HyperSpike MPA400 system interfaces with the following HyperSpike direct drive speakers.

90243A-802-XX – LineWave 4 speaker (8 Ohm)

90243A-803-XX – LineWave 8 speaker (4 Ohm)

90219A-801-XX – TCPA-10 (8 Ohm)

The HyperSpike MPA400 is compatible with all POE Types (1-4). The models listed below were used to define product performance and specifications. Acoustic performance may vary based on the make and model of the selected switch.

PoE – Netgear GS108PE

PoE+ – Netgear GS108PP

4PPoE (Type 4) – Cudy POE400 PoE Injector

1.2 Description

The MPA400 system is an audio over IP decoder which includes an amplifier for digital streaming to HyperSpike® Line Wave and TCPA-10 (direct drive) audio speakers. Depending on the specific application, it is capable of outputting up to 20W when powered with PoE+ and 40W when powered by 4PPoE or the optional 24V power supply.

Table 1: Optional Accessories Installed On-Site

| Part Number | Description |
|-------------|-------------------|
| 72813B-801 | 24VDC PowerSupply |
| | |
| | |
| | |
| | |



1.3 Identification

To aid future troubleshooting and support, please record the following specifics about your installation:

Purchase Date: _____

Speaker Model Number: _____

Speaker Serial Number: _____

MPA400 Serial Number: _____

MPA400 User Number: _____

MPA400 RID Number: _____

1.4 Features

The MPA400 comes in a wall mounted housing that includes 1/2" trade size knockouts.

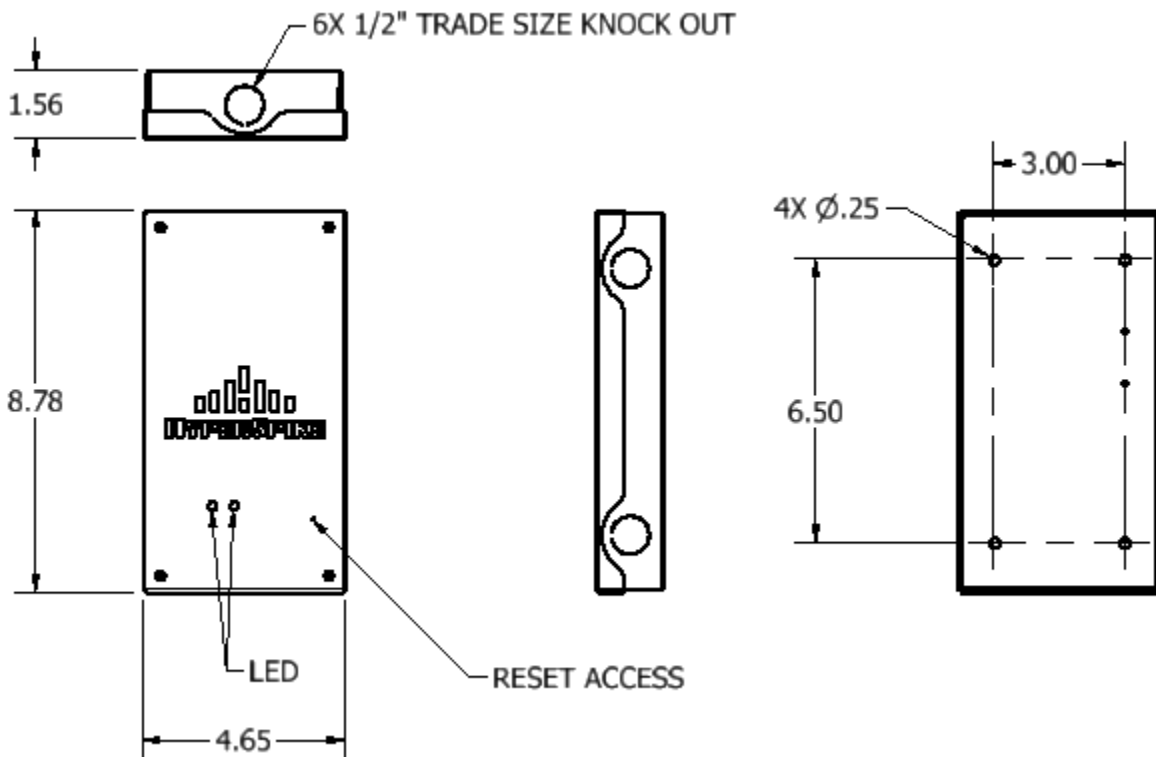


Figure 1: MPA400 Housing



The inside of the housing contains a sophisticated CCA to power HyperSpike® and other direct drive audio speakers using PoE+ or an optional AC to DC power supply. Knockouts (1/2" trade size) are available on each side of the housing for all external connections (speaker out, PoE+, AC power input).



Figure 2: Internal Housing Detail



1.5 Specifications

| | |
|---|---|
| Dimensions | 4.7" W x 8.8" H x 1.6" D (119.4mm W x 223.5mm H x 40.6mm D) |
| Weight without Batteries | < 2 lbs. |
| Enclosure | NEMA 1 / IP54 |
| Temperature Range | 0°C to 50°C |
| Compatible Speakers | Line Wave and TCPA-10 (Direct Drive) speakers up to 40W |
| Power (Auto Switching) | Power over Ethernet (PoE+ / 4PPoE) or 24VDC |
| Power Rating (PoE/PoE+) | 20 Watts Max (802.3AT) / 40W max (802.3bt) |
| Ethernet Interface | RJ45 100/1000 Mbit auto detect (IPv4 and IPv6 capable) |
| Network Configuration | Automatic IP configuration on open networks |
| User Interface | Graphical User Interface for Setup and Control |
| Digital Audio Formats | MP3 CBR/VBR, up to 320 kbps, 8..48 kHz sample freq. AAC-HE (AAC, AAC plus, AAC plus V2) PCM linear 16bit @8, 16, 22.05, 24, 32, 44.1, 48 kHz G.711/ G.722 / GSM / Opus |
| Emergency Notification Compatibility | Stored Message Playback, Auto Registration with common ENS Platforms, InformaCast, Syn-Apps, *Other |
| Health and Status (Visual) | LED Status Lights – Physical Reset Button |
| Security | HTTPS Secure Connection |
| IP Addressing | DHCP / Static |
| Internal Track Storage | 1GB storage |

* Contact HyperSpike for more details <https://www.ultra-hyperspike.com/contact/>

Table 2: Specifications

2. MOUNTING THE MPA400 SYSTEM

2.1 Mounting

The MPA400 uses a NEMA 1 housing and is to be located indoors in a climate-controlled building. When mounting the housing, note the CCA orientation in the housing. It is recommended that the housing is mounted such that connections are made on the same end as the connectors on the CCA. Fasten the MPA400 to the wall surface using appropriate fasteners for the wall. Always follow local codes and safety practices. *Wall fasteners not included.*

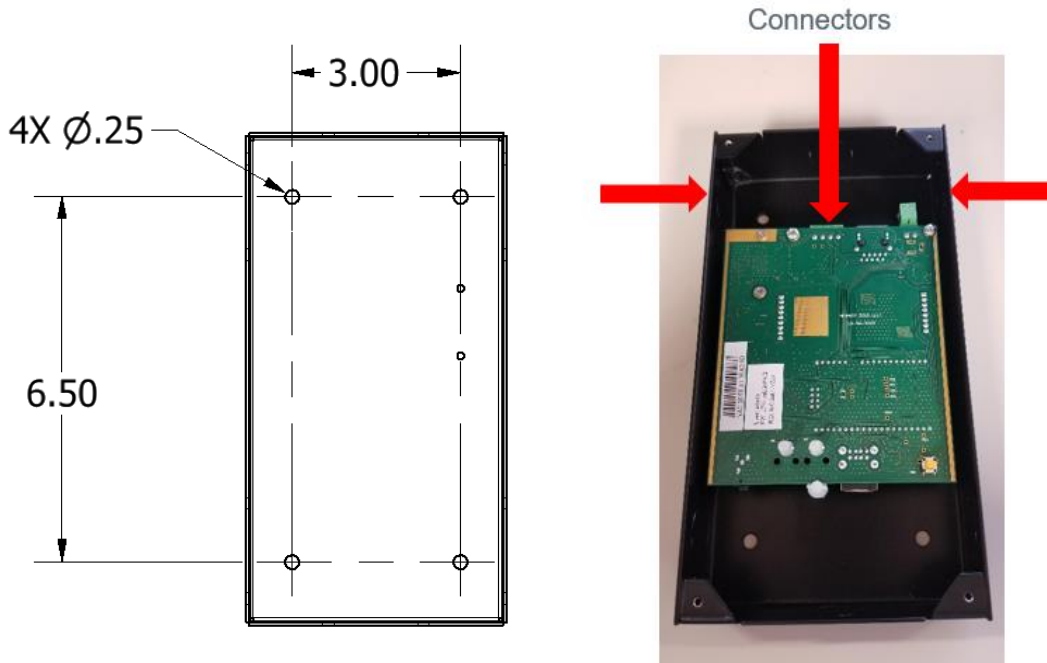


Figure 3 – Mounting

3. MAKING CONNECTIONS

The MPA400 system is configured such that connections are made through the conduit knockouts. It is recommended that connections are made on the same end as the connectors on the CCA. See Figure 4 for reference. Although connections can be made in other locations, appropriate space and wire routing mechanisms are not provided when routing into other locations.



Figure 4 - Recommended Connection Locations



CAUTION

When making outside connections, ensure proper protection and damage prevention actions are taken to avoid impacting internal components. Tools making inadvertent impact with internal component or metal shavings could result in functional issues void of product warranty.



MISE EN GARDE

Lors de l'établissement de connexions à l'extérieur, assurez-vous que des mesures de protection et de prévention des dégâts soient prises pour éviter d'endommager les composants internes. Des outils ayant un impact accidentel avec des composants internes ou des copeaux métalliques pourraient entraîner des problèmes fonctionnels qui ne seraient pas sous garantie.

3.1 Connecting HyperSpike® Speakers

The MPA400 includes a 4-position output connector that will accept 16-26 AWG wire. See Figure 5 for speaker output connections. Install positive (+) speaker wire(s) in pin 3 (red wire shown) and negative speaker wire(s) in pin 4 (black wire shown).

Note: Wire colors are for reference only, see speaker manual for wire color and polarity.

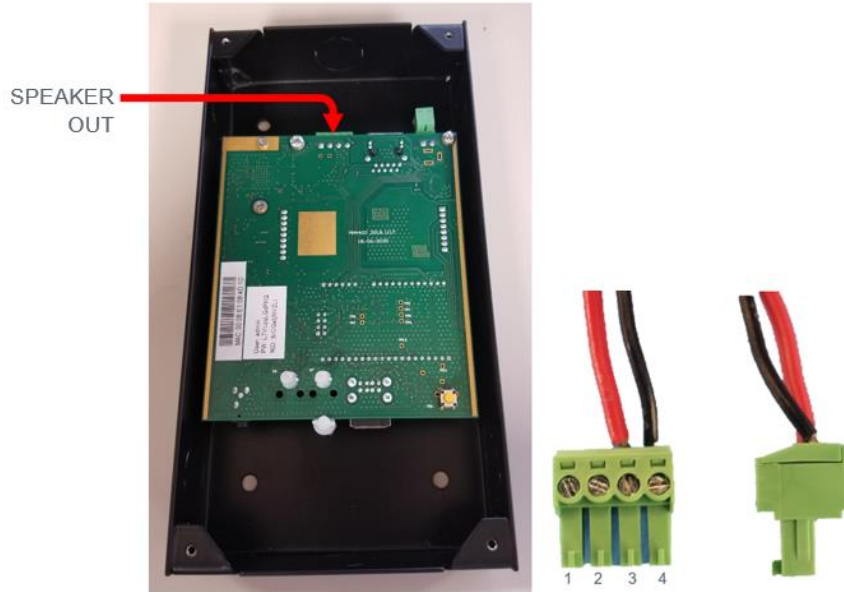


Figure 5 - Speaker Connection



IMPORTANT

Ensure wires are installed with proper polarity. Improper polarity between various channels will negatively impact speaker performance.

3.2 Connecting to a Wired PoE Network

The MPA400 has a standard RJ45 network jack and requires a standard Ethernet cable (CAT5e or better). If optional 24 VDC power is not used, the network connection will need to provide PoE+ or 4PPoE power.



Figure 6 - Network Connection

3.3 Connecting Optional 24VDC Power Supply

The MPA400 includes a 2-position input connector that will accept 16-26 AWG wire. See Figure 7 for power supply connections. Install positive (+) power wire in pin 1 (red wire) and negative power wire in pin 2 (black wire). Wire colors shown are for reference only.

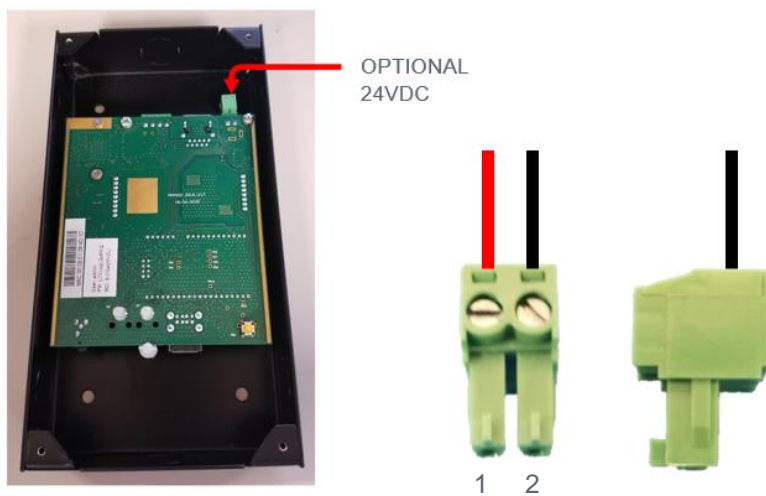


Figure 7 - 24VDC Connection



4. COMMISSIONING

4.1 Post Installation System Check

- 1) Check to ensure all wiring connections are secure:
 - Speaker wiring (check polarity of each speaker connection)
 - Network Connection
 - 24VDC Power (Optional)
- 2) Verify Network connections and that a DHCP Server is available within the network.

4.2 Power-up Sequence

- 1) Enable Power
- 2) MPA400 will acquire an IP Address and announce it on the speaker output.
- 3) By default, the device will announce itself to a Syn-Apps System, System Status LED and Application Status LED turn solid.

4.3 Managing Sources and Use of the MPA 400

1) Login

- a. Use your web browser to log into the MPA400 Web Interface by typing the IP Address into your browser.
- b. Use the user "admin" and the appropriate password provided on the sticker on the backside of the device.

2) Configure your Sources

For the configuration of your sources, the following source types are available:

- Syn-Apps → Announces the MPA400 as an audio device in a Syn-Apps system
- Barix Radio → Plays Barix Radio as http stream without any further configuration
- RTP → Configures the MPA400 to receive an RTP stream
- HTTP → Configures the MPA400 to receive an HTTP stream
- SIP → Configures the MPA400 to be a SIP client
- Local File → Allows to play audio files which are locally stored on the MPA400

Please refer to the help description in the user interface to properly configure your sources.

Please refer to the help description in the user interface to properly configure your sources.

Individual Volume can be set for each of the sources.

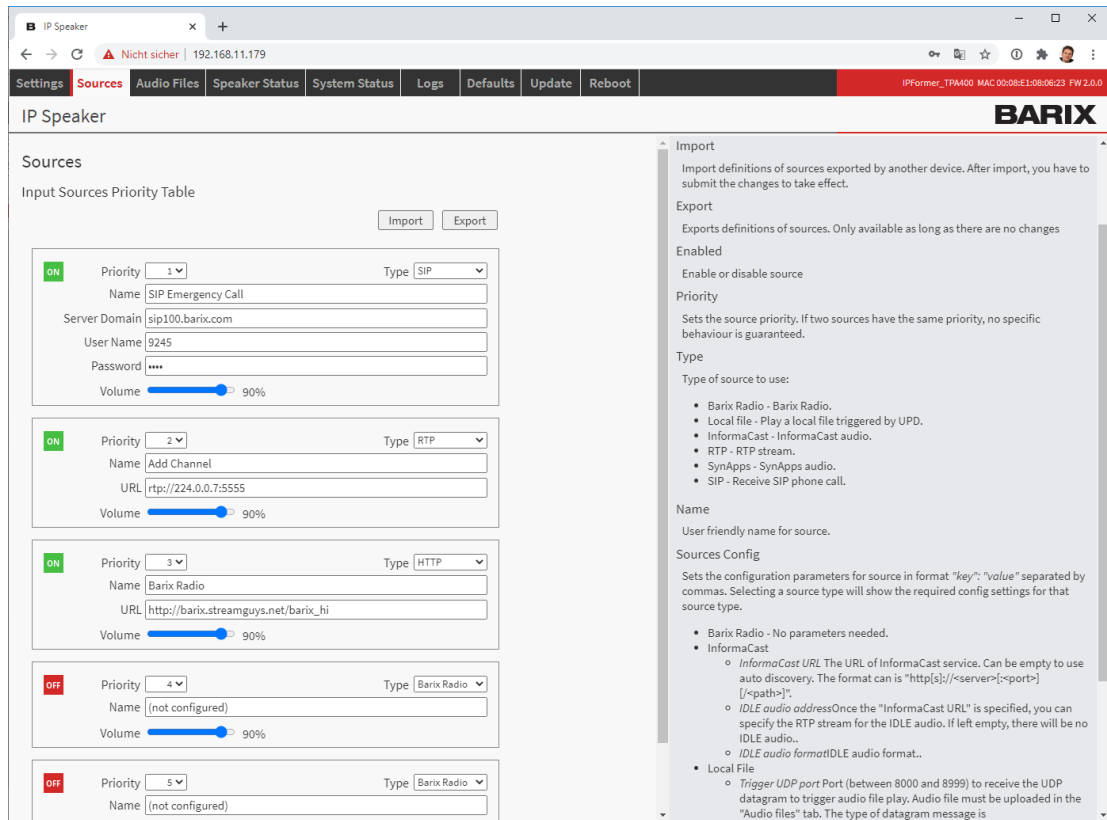


Figure 8 - Sources Page

3) Prioritize you Sources

Multiple sources can be configured at the same time and are played according to their given priority.

- Priority 1: Highest priority
- Priority 5: Lowest priority

Management of priority means that a present stream will be played over another configured stream.

Example of a Priority System

- Priority 3: HTTP Radio Stream playing Background music.
- Priority 2: RTP Streams playing adds over the background music. Background music will stop as soon as the RTP stream is present
- Priority 1: SIP call playing emergency calls. Background music or add will be stopped as soon as SIP call is present.

4) Manage Local Files

Use the menu item "Audio Files" to manage your local files for the source type "Local Files".

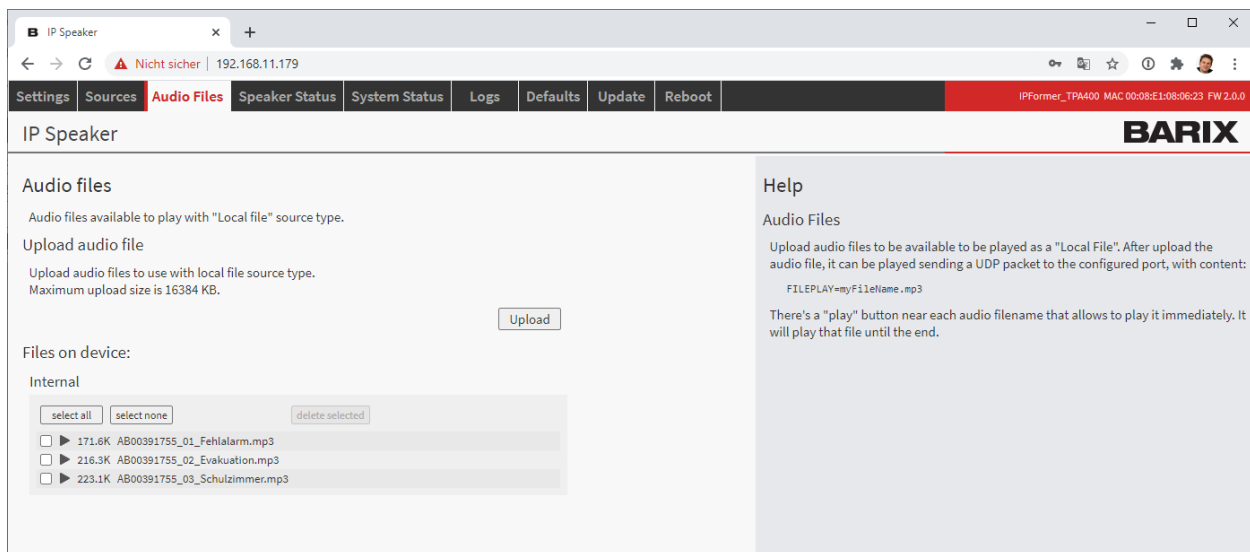


Figure 9 - Audio Files Page

Note: Only MP3 Files are supported for Local Files at the time.

5) Control the MPA400

Once the sources are configured, the MPA400 will start playing them accordingly. Master Volume of the MPA400 can be controlled on the "Settings" page of the web interface.

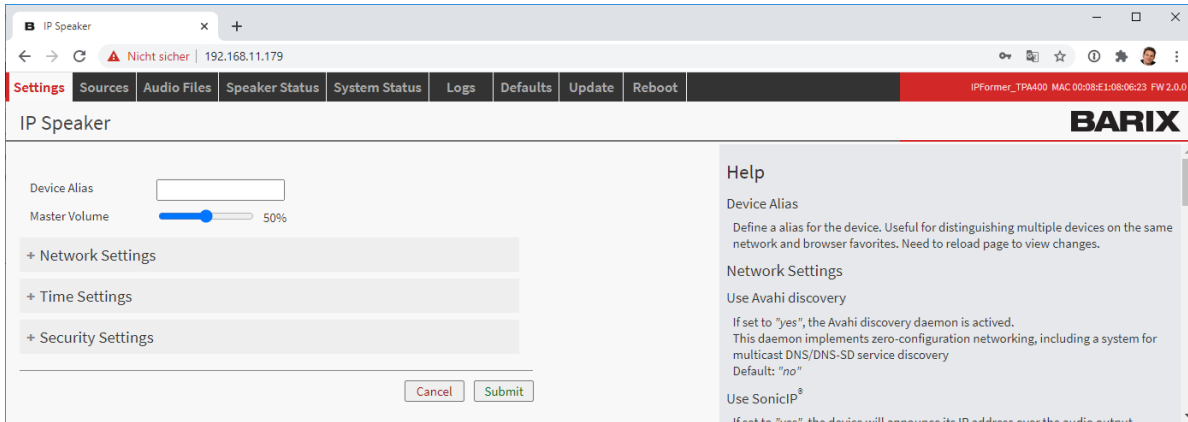


Figure 10 - Settings Page

6) Monitor the MPA400

The "Source Status" page on the web interface will show you the actual status of the sources of the MPA400. Every source status also includes a counter indicating how many times the actual source has been played.

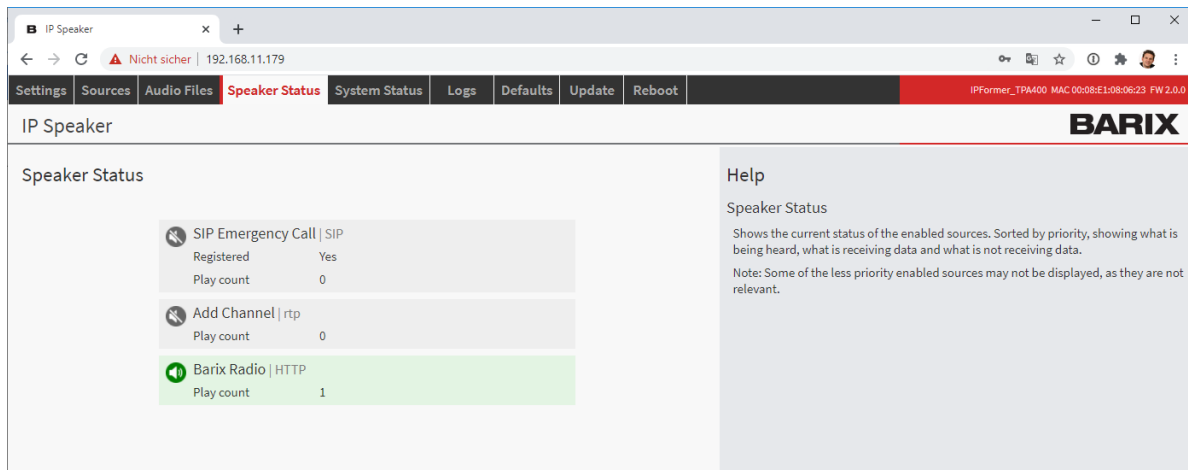


Figure 11 – Speaker Status Page

4.4 Security Settings

These settings are among the most important in the Settings page of the MPA400. In this section it is possible to Enable/Disable key functionalities:

- **Reboot:** Enable or disable the soft reboot from web user interface (button grayed out)
- **Reset Factory Default:** Enable or disable the possibility to reset the device to factory defaults from web user interface (button grayed out)

- **Update Function:** Enable or disable the possibility to update the device from web user interface (button grayed out)

4.5 Network Settings

In the MPA400 Settings page there are parameters used to configure your device with the desired network settings. To set the network settings:

- 1) Wire your MPA400 to a network where a DHCP server is available and switch it on, hear the IP announced over the audio output (SonicIP® function) and connect to its web browser.
- 2) Locate the Network Settings in the "Settings" menu.
- 3) Once settings are configured as desired click on Submit at the bottom of the page, the device will restart and if the IP is changed you must input the new address in the top bar

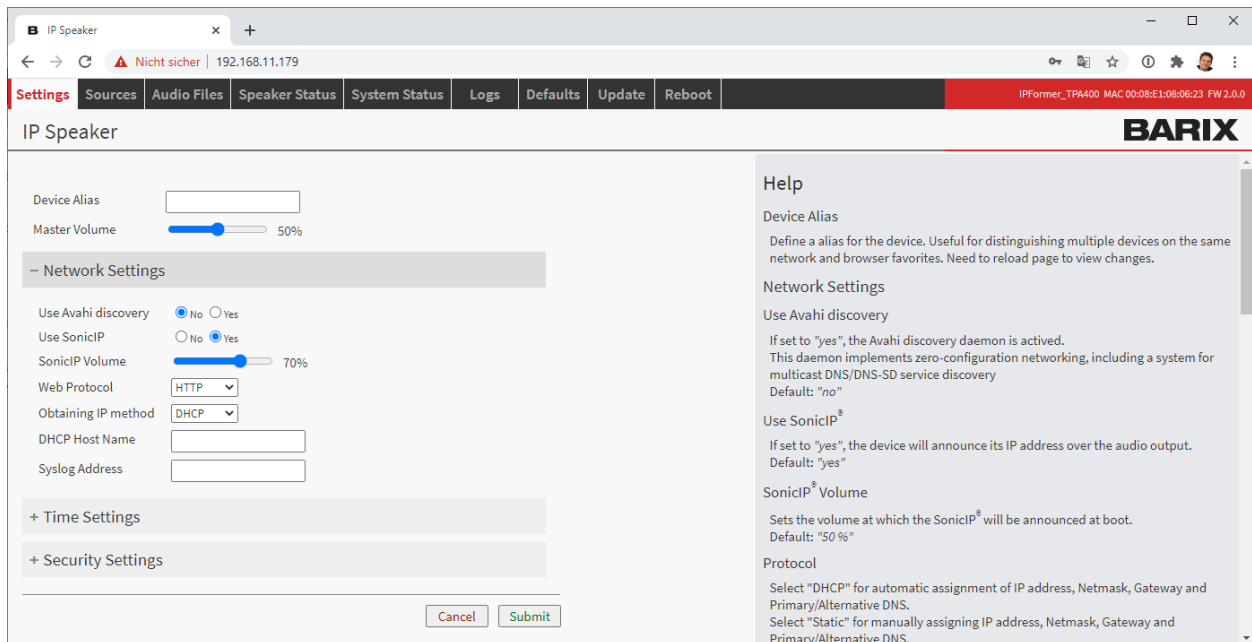


Figure 12 - Settings Page - Network Settings

4.6 Update the Firmware of MPA400

It is always good practice to run the latest firmware on the MPA400. The latest Firmware includes improvements and bug fixes. The firmware on the MPA400 can be updated using the local web interface.

To update the firmware from the web user interface you need first to download the TAR package from the Barix website: www.barix.com/downloads (Firmware is under Products → Decoder → IP Former) or simply type: IP Former in the search bar in the same page. In this page, only the latest firmware from Barix is available.

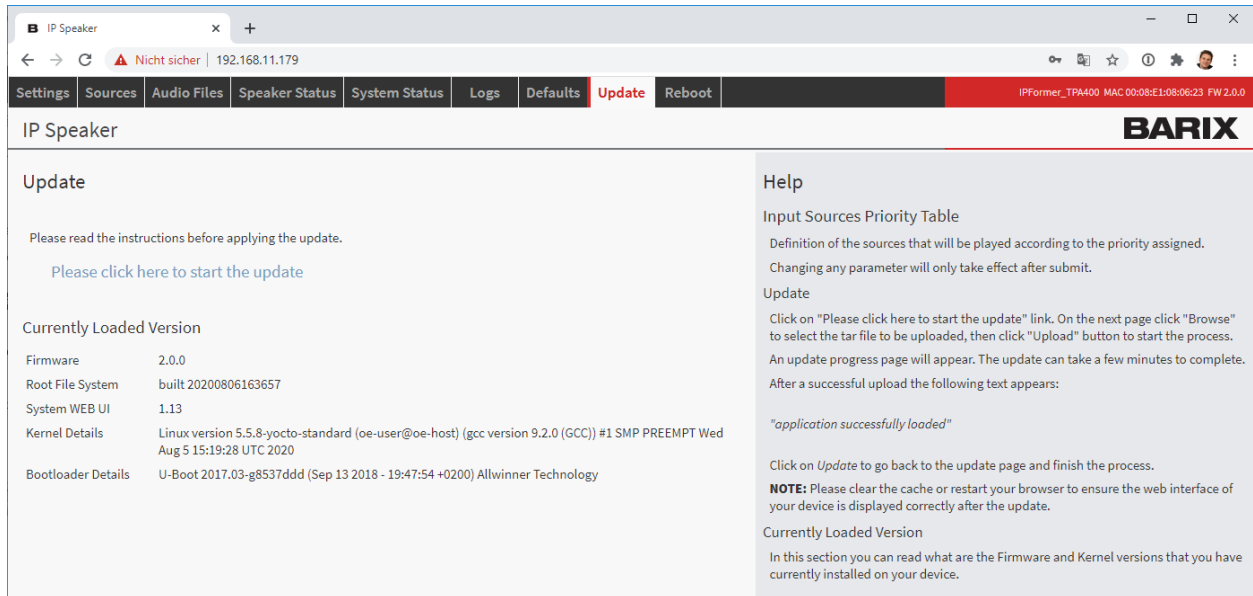


Figure 13 - Update Page

Once the package is downloaded:

- 1) Connect to the MPA400's web user interface
- 2) Navigate to UPDATE from the top bar
- 3) Click on "Please click here to start the update"
- 4) In the following page click on "Browse", locate the TAR package you just downloaded on your PC and open it
- 5) Click on "Upload" - Wait few minutes while the process moves forward. Do not switch off the device while the process is ongoing
- 6) When finished the message "Update completed" appears
- 7) The device will automatically reboot. After the device reboots, click on the home button and refresh the page. You may need to empty the cache of your browser to display the new application.

4.7 Restore Factory Defaults

There 2 reset methods available on the MPA400:

- Soft reset from web user interface
- Hard reset from the front Reset button on the device

Soft Reset

A soft reset restores all parameters except the network settings. To reset the device including network settings perform a Hard Reset.

- 1) Connect to the web user interface of the MPA400 and navigate to the DEFAULTS tab.
- 2) Click on Reset Factory Defaults to perform a reset of the device.

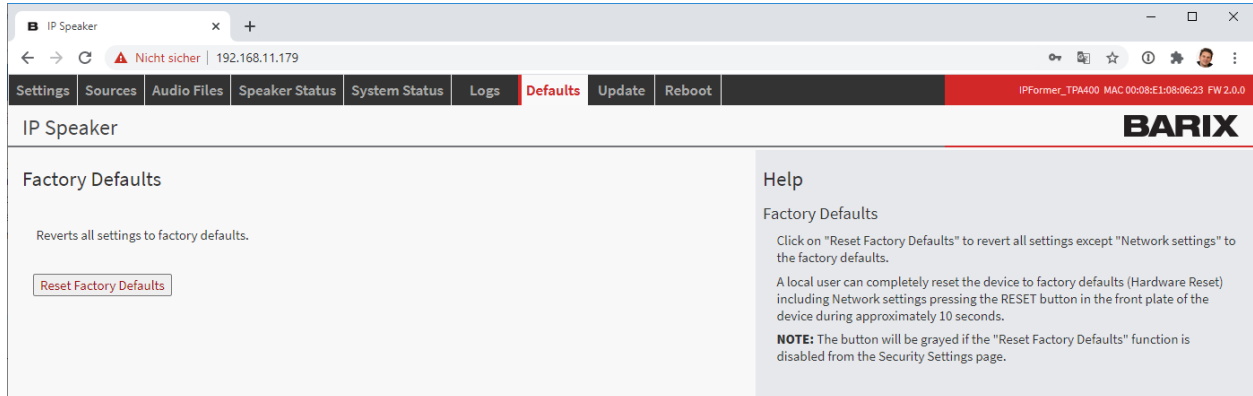


Figure 14 - Defaults Page

Hard Reset

A hard reset restores all values and settings on the MPA400. To perform a hard reset:

- 1) Press the reset button located in the front panel of the device for approximately 10 seconds.
- 2) The green LED will flash 3 times to confirm reset operation.
- 3) Once the process is complete, the device will reboot.
- 4) The network settings will have been restored.

Note: The IP address may have changed, listen to the SonicIP® announced over the audio output to verify IP address.

5. HEALTH AND STATUS MONITORING

5.1 Status LEDs

The MPA400 has 2 LEDs visible from front of the housing. These LEDs provide system and applications status. See Tables 5 and 6 for status descriptions

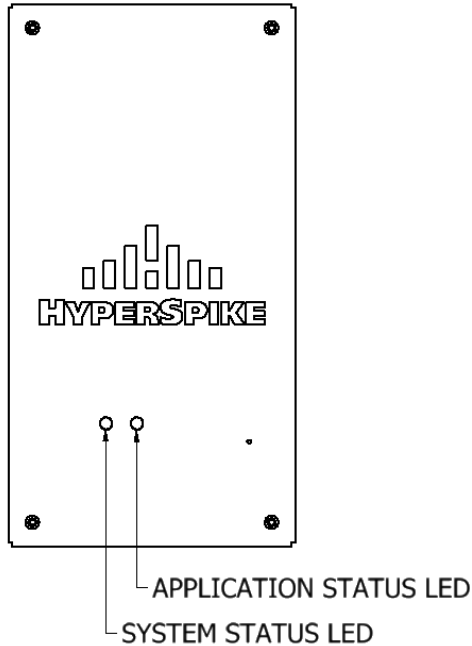


Figure 15 - LED Status

Table 3: System Status

| LED Color | LED Status | Status Description |
|-----------------|---------------|-----------------------------------|
| Red | Fast Flashing | Early Startup |
| Red | Slow Flashing | System Booting |
| Yellow | Flashing | System in Rescue Mode |
| Orange / Yellow | Flashing | Downloading / Installing Firmware |
| Green | Solid | System Ready |

Table 4: Application Status

| LED Color | LED Status | Status Description |
|-----------|------------|-------------------------|
| Red | Solid | Application Not Running |
| Green | Solid | Application Running |



6. MAINTENANCE AND TROUBLESHOOTING GUIDE

6.1 Recommended Maintenance

On a regular basis, check the system:

- Check for vandalism or natural damage.
- Check speaker wiring for frays, cuts, and kinks.
- Perform an operational test.

6.2 Troubleshooting Guide

- For amplifier module related issues:
 - Refer to Section 5.1 to verify system status.
 - If no LEDs are illuminated, verify power is provided by a compliant PoE+ or 4PPoE network connection, or optional 24 VDC power source. Refer to Section 3.2 and 3.3
 - Verify network is connected and configured properly. Refer to Section 3.2
- For speaker related issues:
 - Verify speaker is properly connected to MPA400. Refer to Section 3.1
 - For additional troubleshooting, refer to the associated product manual.

For any other issues, contact customer service. For accurate and expedient customer service, please have the following information readily available when contacting Ultra:

- Model number
- Serial number
- Purchase date



7. WARRANTY

Ultra Electronics – USSI warrants that its products shall conform to the published specifications as of the date of order and shall be free from defects in material and workmanship.

Upon receipt of the returned product(s), Ultra Electronics – USSI will repair or replace any and all product(s) at its discretion. Ultra Electronics – USSI will not issue a credit for product(s) returned through the Return Authorization process. This warranty is extended to the original purchaser and all subsequent owners, provided a copy of the original dated bill of sale is presented when service is requested under warranty.

HyperSpike® Warranty Period

Such warranty shall extend for a period of one (1) year from the date of shipment from USSI's facility.

How to obtain service under this warranty

If your product(s) should require service, please write, phone, fax, or email us at:

Ultra Electronics – USSI
4868 East Park 30 Drive
Columbia City, Indiana, USA 46725
Phone: 260-248-3665
Email: ServiceDepartment@ultra-ussi.com

Ultra Electronics – USSI will provide a Return Material Authorization (RMA) number so that you can ship the product(s) to our factory. Do not ship the product(s) to us without first obtaining an RMA number. Place the RMA number on all boxes returned to the factory. You are responsible for transporting your product(s) to our factory. We will pay the return shipping charges on all product(s) repaired under warranty.

Failures not covered by this warranty

This warranty covers defects in manufacture only. It does not cover:

1. damage caused by accident, misuse, abuse, product modification, or neglect;
2. damage incurred during shipment (you must claim these damages from the carrier);
3. damage resulting from failure to operate the product in accordance with the instruction manual; or
4. damage resulting from attempted repairs by unauthorized personnel.

Exclusion of certain damages

Ultra Electronics – USSI's liability is limited to the repair or replacement, at our option, of any defective product(s) and shall in no event include indirect, consequential, incidental, punitive, or special commercial damages of any kind. Some states do not allow the exclusion or limitation of indirect, consequential, incidental, punitive, or special damages so the preceding limitation or exclusion may not apply to you.

Warranty after repairs

An additional warranty of ninety (90) days will be extended to any parts that were repaired or replaced. The original standard warranty or any extended warranty that was purchased at the original time of sale of the product(s) is still in effect for the remainder of the warranty term.