HALL TECHNOLOGIES HT-OSIRIS-DSP1 Digital Signal Processor User Manual

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Contents

Introduction

OVERVIEW

In the ever-evolving landscape of virtual communication, clear and immersive audio is paramount to successful collaboration. Say hello to the **HT-OSIRIS-DSP1,** your ultimate solution for achieving exceptional audio quality in online meetings and conferences. With its innovative features and seamless integration, this digital signal processor is here to revolutionise the way you communicate.

The **HT-OSIRIS-DSP1** isn't just a game-changer for professional meetings; it's also revolutionising the world of education. As distance education becomes increasingly essential, our product steps up to provide unparalleled audio quality and safety features, ensuring seamless learning experiences for both students and teachers.

Safety is of paramount importance in any learning environment. The **HT-COMALERT** wireless microphone, a complementary addition to the HT-OSIRIS-DSP1 system, isn't just a microphone – it's a lifeline. For educators and students alike, the S.O.S. feature takes center stage, offering a quick and reliable way to summon assistance in case of emergencies. Whether it's a medical situation, security concern, or any unforeseen event, the S.O.S. functionality provides peace of mind, making educational spaces more secure than ever before.

To complete the transformation, the **HT-SATELLITE-CM** ceiling microphones are the perfect addition for classroom setups. By effortlessly capturing the voices of both teachers and students, these microphones enhance interactivity and engagement, creating an immersive educational experience that bridges physical and virtual worlds.

FEATURES

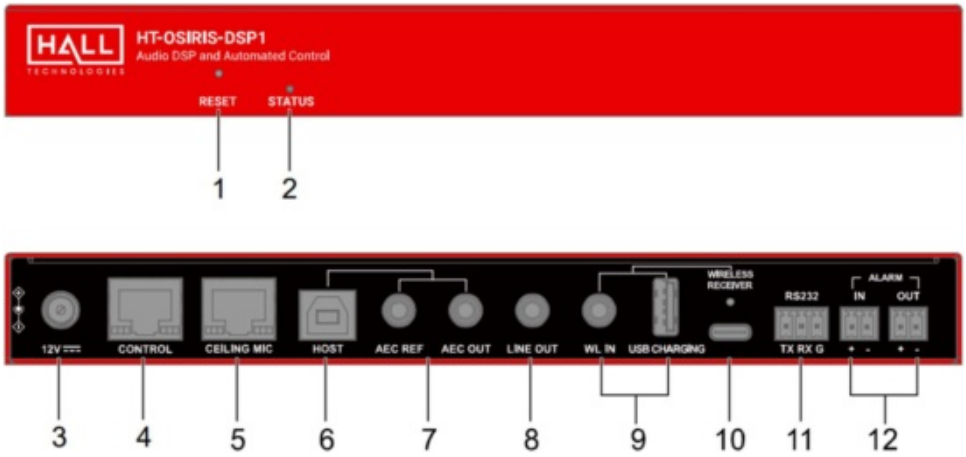
- Cutting-edge digital signal processing engine that effectively routes and mixes audio inputs, ensuring your audio is crisp, clear, and perfectly balanced, enhancing the overall meeting experience.
- Allows you to route or mix audio inputs to both the line output and USB output individually, granting you greater control over your audio setup.
- Simple plug-and-play Universal Communication Compatibility (UCC) technology, seamlessly connecting to popular conferencing platforms like Google Meet, Microsoft Teams, Zoom, and more. Effortlessly join meetings without the hassle of complex configurations.
- Includes Acoustic Echo Cancellation (AEC), Automatic Gain Control (AGC), and Adaptive Noise Suppression (ANS) technologies, ensuring that your voice remains crystal clear, free from echoes, background noise, and volume imbalances.
- Supports audio ducking processing, ensuring the speaker is always heard over background sound, loud and clear.
- The optional **HT-COMALERT** wireless microphone not only provides you with exceptional voice lift, ensuring your voice reaches every corner of the room, but also doubles as an essential safety feature with the ability to trigger S.O.S. alerts instantly, enhancing security and peace of mind.
- The optional **HT-SATELLITE-CM** ceiling microphones offer superior audio pickup, ensuring that every participant's voice is heard loud and clear.
- Provides flexible control options using Web UI and API commands.

Package Contents

- 1 x HT-OSIRIS-DSP1 Digital Signal Processor
- 1 x DC 12V Power Adapter (with US, UK, EU & AU pins)
- 1 x 3-Pin Phoenix Male Connector

- 2 x 2-Pin Phoenix Male Connectors
- 4 x Mounting Brackets
- 4 x Mounting Screws

Panel Description

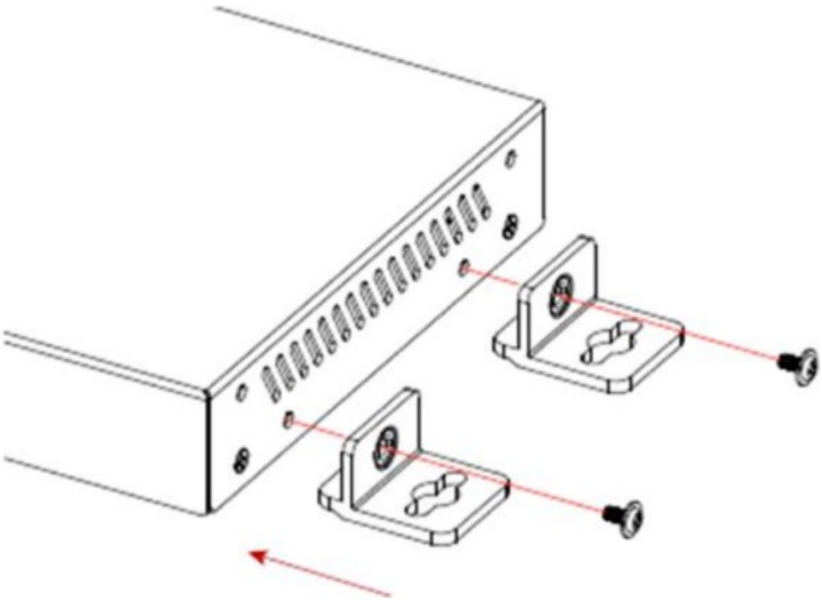


ID	Name	Description
1	RESET	Use a pointed stylus to press and hold for at least 5 seconds to reset the device to factory defaults
2	STATUS	• LED lighting is solid green: The device is working properly. • LED lighting is blinking green: The device is either being upgraded or is being reset to factory defaults. • LED is off: The device is powered off.
3	12V	Connect to the DC 12V power adapter
4	CONTROL	Connect to a LAN for Web UI and Telnet Control
5	CEILING MIC	Connect to one or multiple cascading ceiling microphones for capturing sound and charging microphones. **NOTE:** The device allows up to four microphones to cascade together.
6	HOST	USB Type-B port connection to the PC
7	AEC REF	Connect to the PC's 3.5mm headphone output for receiving AEC reference signal
8	AEC OUT	Connect to the PC's 3.5mm microphone input for transmitting the sound that subtracts a filtered version of the reference signal from the wireless microphone signal
9	WL IN	3.5mm input for connection to wireless microphone. The USB Type-A port is used to charge the microphone with 5V/1.25A (if needed)
10	WIRELESS RECEIVER	USB Type-C port for audio connection to the HT-COMALERT-WR with 5V/1.5A charging
11	RS232	Connect to a RS232 device for bidirectional serial communication
12	ALARM IN / OUT	Ports for signals from/to a third-party control system. Input modes: contact closure or voltage input (3.3V ~ 5A). Output modes: contact closure or 5V voltage.

INSTALLATION

Note: Before installation, please ensure the device is disconnected from the power source.

1. Position and install the mounting brackets (two at each side) using the mounting screws provided.

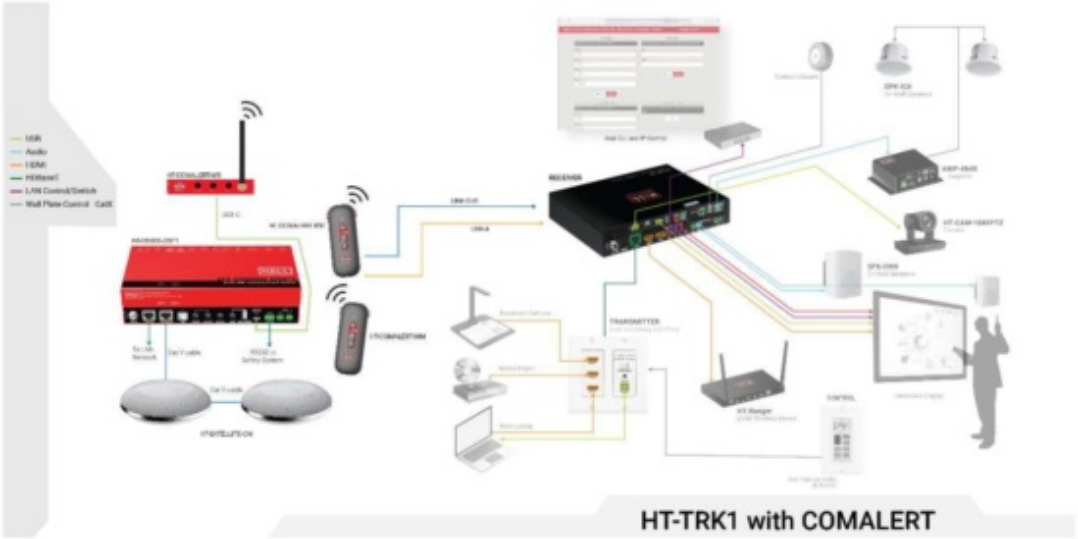


2. Repeat above step for the other side of the device.
3. Attach the brackets to the desired location.

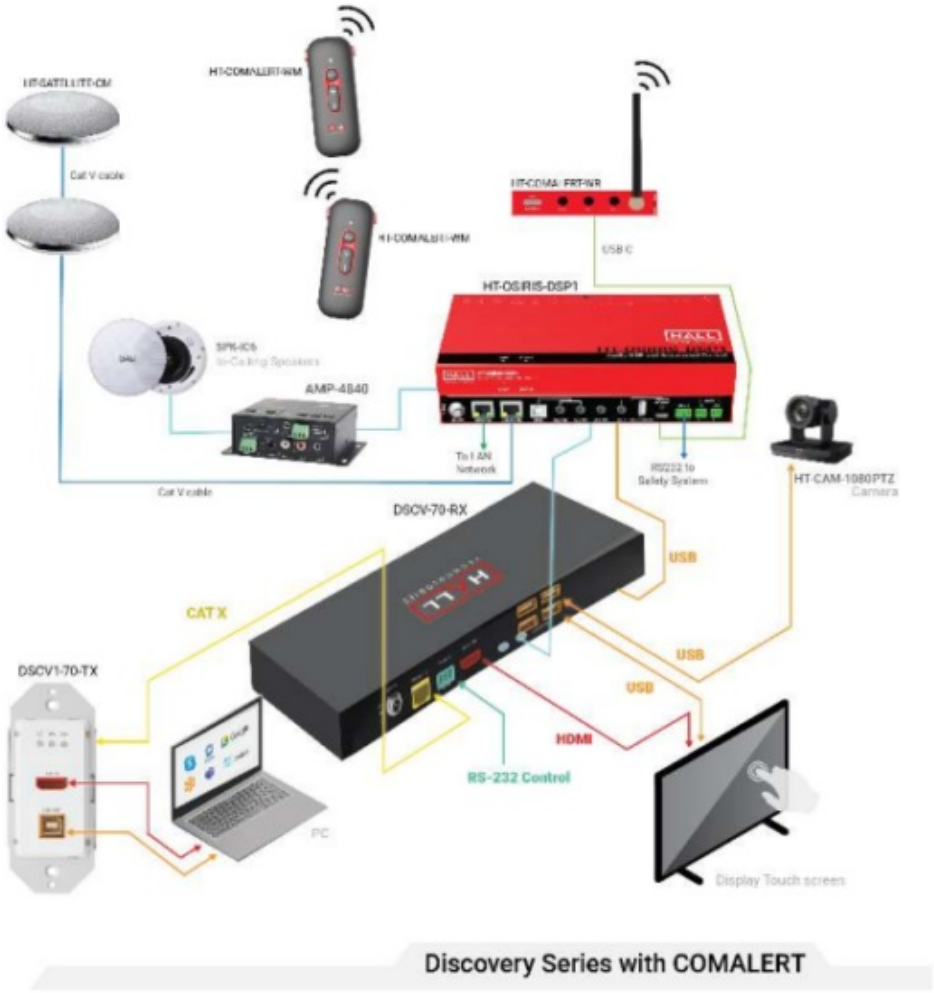
Application Wiring

There are various different application methods with wiring examples; two are shown below.

INTEGRATION WITH HT-TRK1



INTEGRATION WITH DISCOVERY



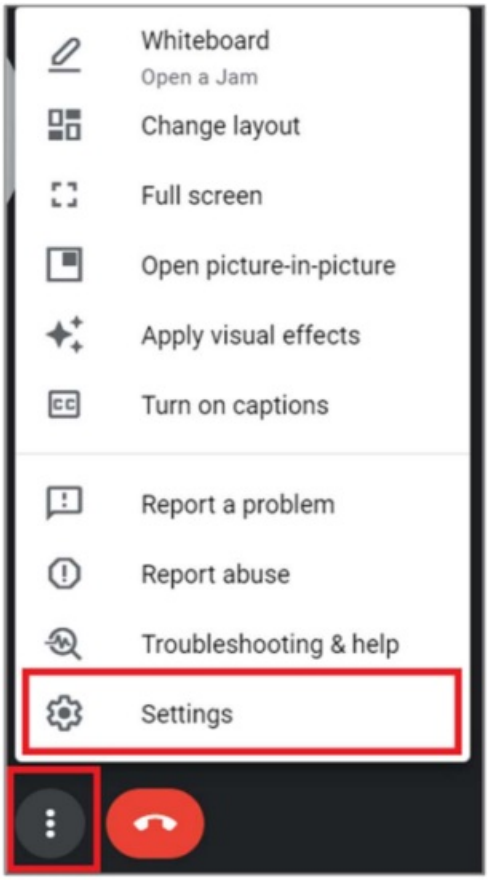
Discovery Series with COMALERT

Soft Codec Support

The following are instructions to utilizing the HT-OSIRIS-DSP1 camera and microphones in the Google Meet, Microsoft Teams, and Zoom soft codec applications. The HT-OSIRIS-DSP1 is not limited to these three. (For soft codec applications outside of these three please refer to their user manual.)

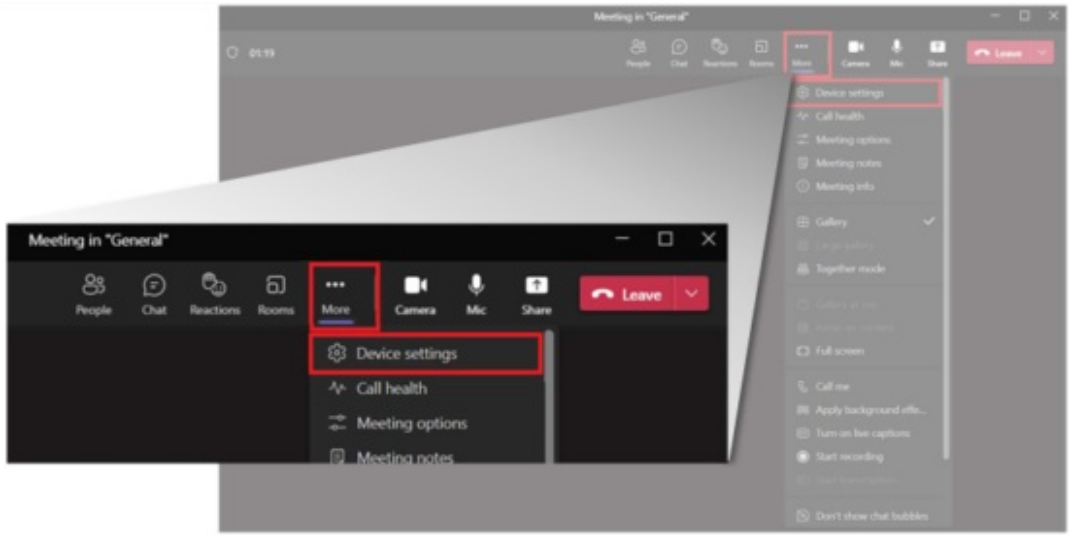
GOOGLE MEET

To use the devices in Google Meet, open “More Options” and then click on “Settings.” In the video settings, select the “HT-OSIRISDSP1” for the camera and in the audio settings select “HT-OSIRISDSP1” for both microphone and speaker.



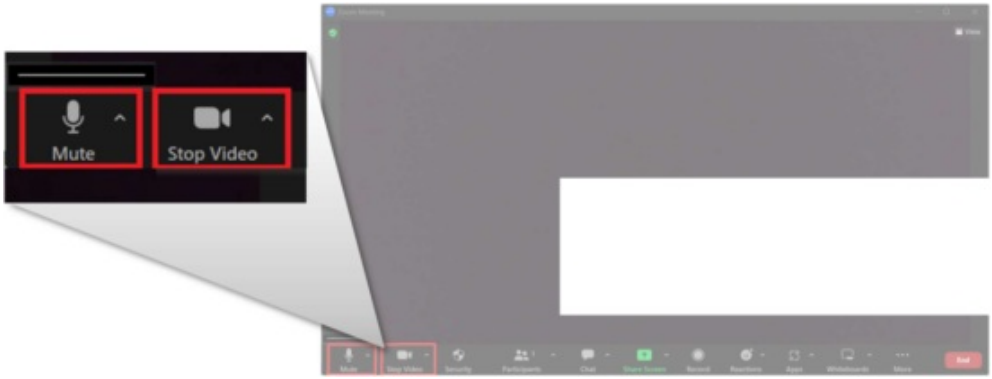
MICROSOFT TEAMS

To use the devices in Microsoft Teams, open Device Settings located in the “More” menu. In the video settings, select the “HT-OSIRIS-DSP1” for the camera and in the audio settings select “HT-OSIRIS-DSP1” for both microphone and speaker.

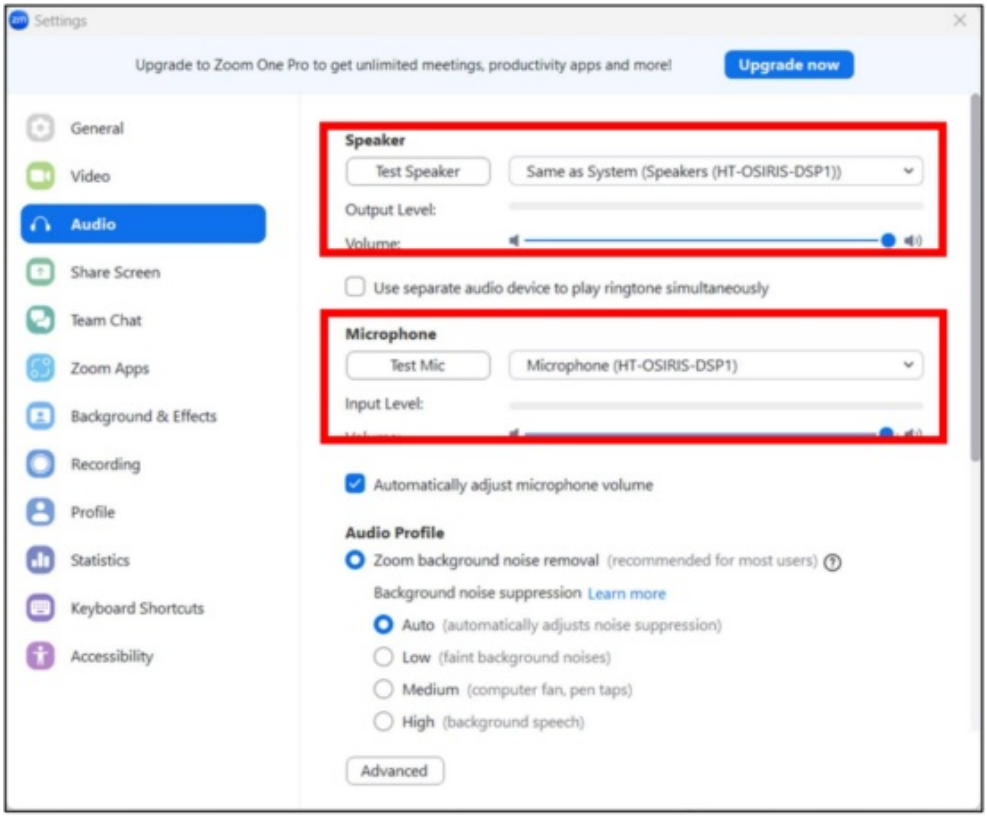


ZOOM

To use the devices in Zoom, click on the “up” arrow on the microphone and camera buttons located on the bottom left part of the Zoom screen. In the video settings, select the “HT-OSIRIS-DSP1” for the camera and in the audio settings select **“HT-OSIRIS-DSP1”** for both microphone and speaker.



AUDIO



Web GUI

The Web UI designed for the HT-OSIRIS-DSP1 allows for basic controls and device settings. This Web UI can be accessed through a modern browser, e.g., Chrome, Safari, Firefox, IE10+, etc.

To get access the Web UI:

1. Connect the LAN port of the switcher to a local area network. The default IP address of the **HTOSIRIS-DSP1** is 192.168.10.254.
2. Connect the PC to the same network as the **HT-OSIRIS-DSP1.**
3. Input the IP address in the browser and press Enter, the following login window pops up.

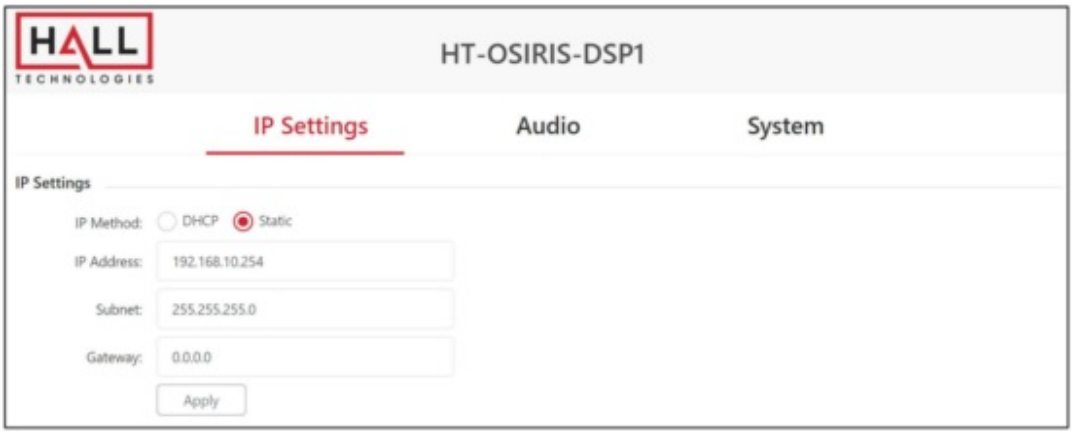
4. Input the username and password (default for both: admin) and click Login to enter the main page

The Web UI main page includes IP Settings, Audio, and System Tabs.

1. **IP Settings (1st page)** – change from the default IP address to a different static address; set S.O.S. settings.
2. **Audio** – changes the audio mode to set routing of the audio; set ducking of the microphones.
3. **System** – offers device information and settings for updating the firmware.

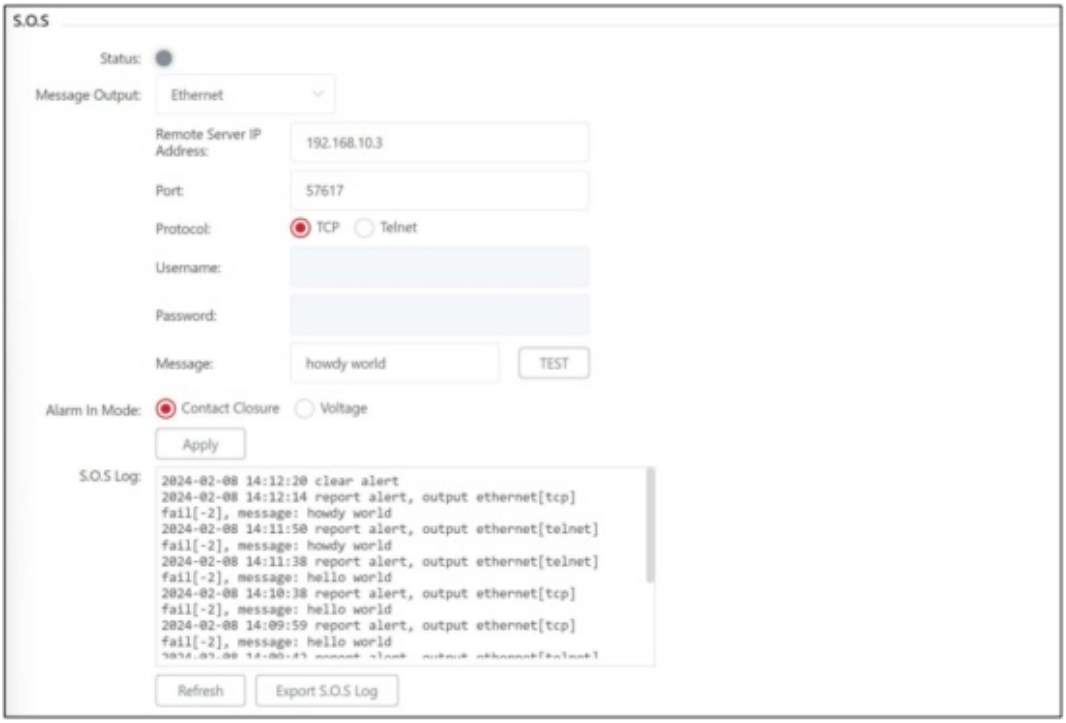
IP Settings Tab

IP SETTINGS



UI Element	Description
IP Method	Select DHCP or Static (default)
IP Settings	Set the IP address, subnet, and gateway (in Static mode).
Apply	Click to apply the settings.

S.O.S.

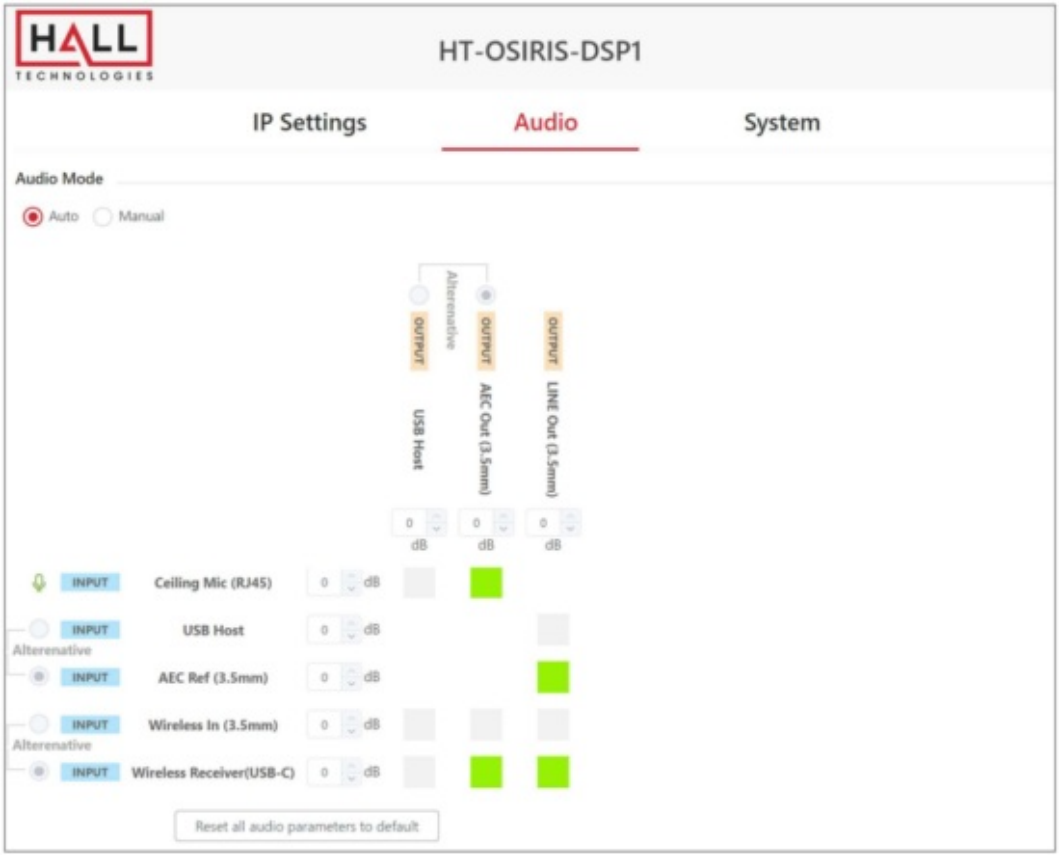


UI Element	Description
Status	The status LED illuminates when in S.O.S. mode.
Message Output	Select from the dropdown menu the desired method to output a message: Ethernet , RS- 232, Contact Closure
Message Output: Ethernet	• **Remote Server IP Address:** Input the server's IP address and port number. • **Protocol:** Select between TCP and Telnet. When Telnet is selected, enter username and password to log on to the server. • **Message:** Input the message content to be sent.
Message Output: RS-232	• **Baud Rate** / **Data Bits** / **Parity** / **Stop Bits:** Default setting is 115200n-1. • **Hex Mode:** Select to define the format for the serial string, between ASCII & Hex. • **Append Carriage-Return** / **Line Feed:** When enabled, the carriage return or line feed terminator will be added for each command to be sent. • **Command:** Input the command content to be sent.
Message Output: Contact	• **Output Mode:** Select the signal input mode between contact closure and voltage (3.5V ~ 5V)
Alarm in Mode	Select the external alarm trigger mode between contact closure and voltage input (3.5 V ~ 5V).
Apply	Click to apply setting changes.
S.O.S. Log	Contains the log of all triggered events.

Audio Tab

AUDIO MODE

The HT-OSIRIS-DSP1 includes three input channels and two output channels, among which there are three groups of mutually exclusive options between USB Host and AEC Ref, between WL IN and Wireless Receiver, and between USB Host or AEC out.



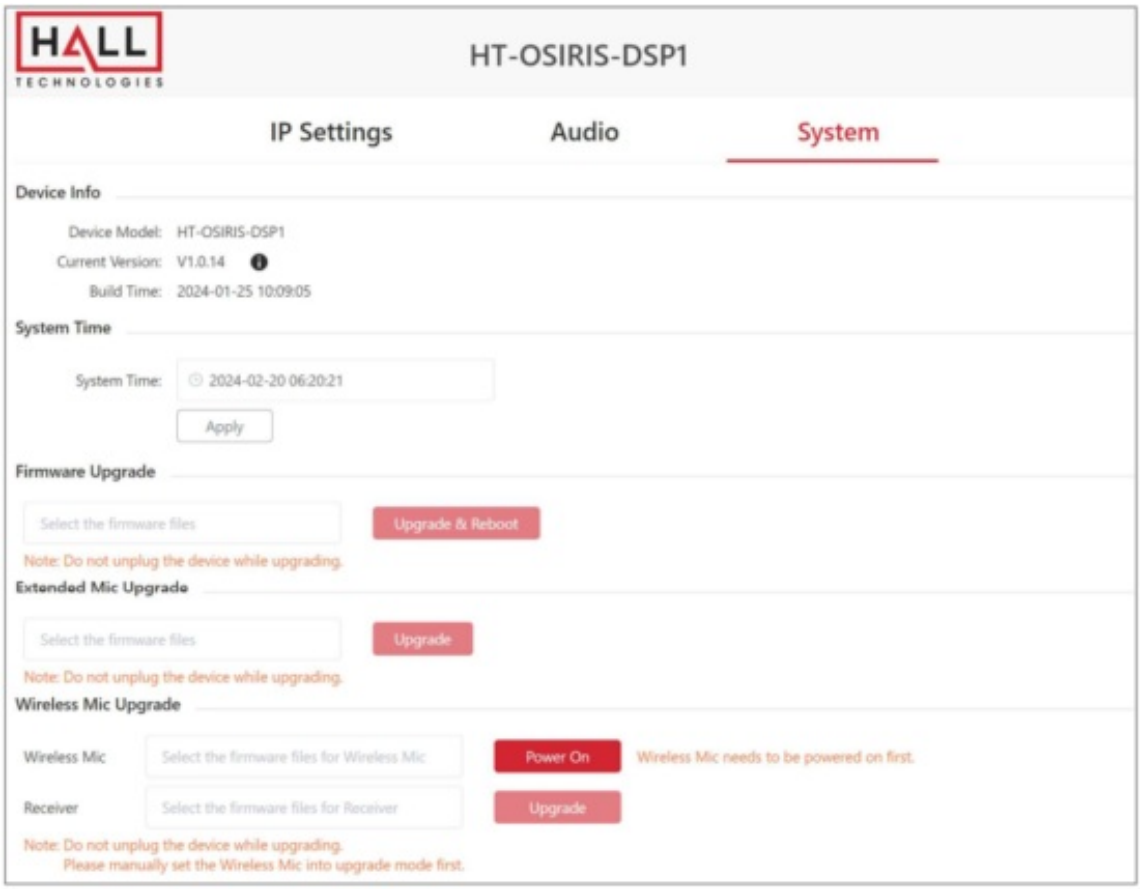
UI Element	Description
Audio Mode	Toggle between Auto or Manual mode. In Manual mode, select the desired inputs a nd outputs by clicking on the radio buttons next to each.
Microphone Mute	Click on the microphone symbol next to Ceiling Mic to mute the ceiling mic.
Input/Output Levels	Set the desired input/output levels.
Reset	Click to reset all audio parameters to default factory settings.

DUCKING

UI Element	Description
Enable	Click to enable/disable microphone ducking mode.
Master	Set which microphone – wireless mic or ceiling mic – to act as the master microphone. If wireless microphone is selected as master microphone the ceiling microphone will be the one ducked when the wireless microphone is spoken into. Default setting is Wireless MIC.
USB IN ducking	Click to enable USB input ducking. Default setting is off.
Attack Time	Set the amount of time for how quickly the microphone is ducked. Default setting is 100ms .
Release Time	Set the amount of time for the ducked microphone to go back to normal when there is no s peaking into the master microphone. Default setting is 1000ms.
Ducking Depth	Sets the level of how much the ducked microphone is decreased. The lower the value set, the lower the volume of the specified audio input when ducking is triggered. Default setting is -20dB.
Ducking Trigger	Sets the level at which the master microphone is used to trigger ducking. The lower the va lue set, the easier the ducking is triggered. Default setting is -30dB.

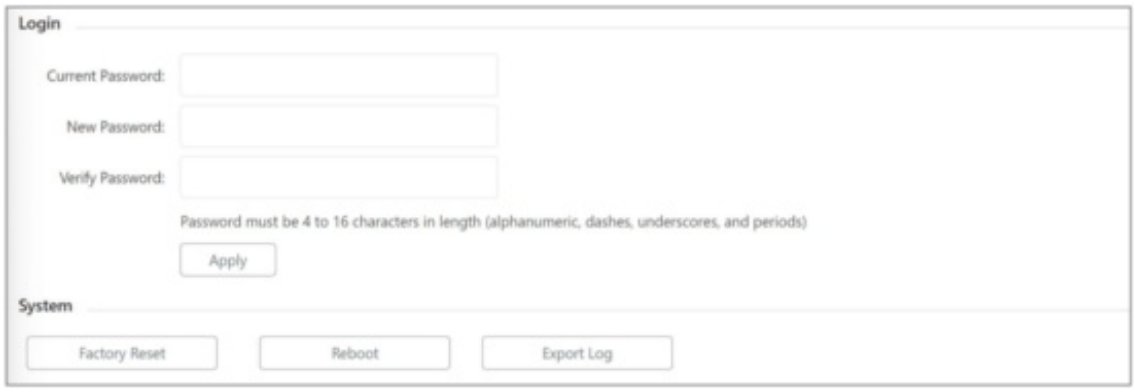
System Tab

DEVICE INFO & FIRMWARE UPDATE



UI Element	Description
Device Information	Displays the device model, current version of firmware, and build time.
System Time	Set the system time for accurate log readings. Note, with a power cycle this resets t o default factory clock setting.
Upgrade	Select the firmware file for the desired device to be upgraded.

LOGIN & SYSTEM



UI Element	Description
Login	Click to change the password.
System	Perform a factory reset, reboot the device, or export the log.

API Commands

Additional commands not found in the Web GUI such as AEC enable/disable, AGC enable/disable, ANC enable/disable, and others can be found in the HT-OSIRIS-DSP1 API Commands document.

Specifications

Audio	
Input	• 1 x RJ45 (Ceiling Mic) • 1 x USB Type B (HOST) or 1 x 3.5mm TRS (AEC REF) • 1 x 3.5mm TRS (WL IN) or 1 x USB Type-C (WIRELESS RECEIVER)
Output	• 1 x USB Type-B (HOST) or 1 3.5mm TRS (AEC OUT) • 1 x 3.5mm TRS (LINE OUT)

Communication and Control	
Control Method	1 x RJ-45 (LAN) – Web UI
S.O.S.	• 1 x RJ-45 (LAN) – Ethernet: TCP or Telnet • 1 x 3-Pin Phoenix – RS-232 • 1 x 2-Pin Phoenix – Contact Closure / Voltage Out • 1 x 2-Pin Phoenix – Contact Closure / Voltage In

General	
Operating Temperature	0°C ~ 40°C (32°F to 104°F), 10% to 90%, non-condensing
Storage Temperature	-20°C ~ 60°C (-4°F to 140°F), 10% to 90%, non-condensing
Power Supply	DC 12V 2A
Power Consumption (Max)	10.1W (Max)
Dimension (Width x Heigh x Depth)	8.46” x 0.98” x 4.73” (215mm x 25mm x 120.2mm)
Net Weight	1.52 lbs. (0.69 kgs)

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Documents / Resources

	HALL TECHNOLOGIES HT-OSIRIS-DSP1 Digital Signal Processor [pdf] User Manual HT-OSIRIS-DSP1, HT-OSIRIS-DSP1 Digital Signal Processor, HT-OSIRIS-DSP1, Digital Signal Processor, Signal Processor, Processor

References

- User Manual