IMPORTANT SAFETY INSTRUCTIONS

1. READ these instructions.
2. KEEP these instructions.
3. HEED all warnings.
4. FOLLOW all instructions.
5. DO NOT use this apparatus near water.
6. CLEAN ONLY with dry cloth.
7. DO NOT block any ventilation openings. Allow sufficient distances for adequate ventilation and install in accordance with the manufacturer’s instructions.
8. DO NOT install near any heat sources such as open flames, radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat. Do not place any open flame sources on the product.
9. DO NOT defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. PROTECT the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. ONLY USE attachments/accessories specified by the manufacturer.
12. USE only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. UNPLUG this apparatus during lightning storms or when unused for long periods of time.
14. REFER all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. DO NOT expose the apparatus to dripping and splashing. DO NOT put objects filled with liquids, such as vases, on the apparatus.
16. The MAINS plug or an appliance coupler shall remain readily operable.
17. The airborne noise of the Apparatus does not exceed 70dB (A).
18. Apparatus with CLASS I construction shall be connected to a MAINS socket outlet with a protective earthing connection.
19. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
20. Do not attempt to modify this product. Doing so could result in personal injury and/or product failure.
21. Operate this product within its specified operating temperature range.

This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.

This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.
General Description

The MXW Audio Network Interface (ANI) is a digital-to-analog breakout box with a built-in gigabit network switch. It converts digital audio from a network into analog signals for signal processing or amplification. Input channels add analog audio to the network and can be routed to MXW microphones as a translation channel or for personal monitoring.

The front panel includes channel status indicators and controls for gain and mute adjustment. Monitoring features include a headphone jack and dBFS output meter. A computer can remotely monitor and control a networked unit from a built-in webserver interface (GUI).

Features

• Converts digital audio from the Dante network into analog output signals
• Built-in gigabit network switch with four ports
• Input channels add analog audio to the digital audio network
• Front-panel gain and mute controls
• Headphone jack for monitoring and troubleshooting
• Monitor LEDs display channel status and output levels

Model Variations

<table>
<thead>
<tr>
<th>Model</th>
<th>Analog Outputs (mic/line/aux)</th>
<th>Analog Inputs (line/aux)</th>
<th>Gigabit Ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>MXWANI8</td>
<td>8</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>MXWANI4</td>
<td>4</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

Microflex Wireless Series

The ANI is a part of the Microflex Wireless Series (MXW), a complete solution for meeting room and presentation applications. Developed with Dante™ technology by Audinate, digital audio is routed over standard IP equipment across a network of access points, digital-to-analog converters and computers. Access points mount to a ceiling or wall and communicate wirelessly with the microphones to add audio to the network. RF coordination is automatic and continuous, offering worry-free wireless audio transmission for every event.

MXW Components

① Microflex Microphones
The MXW microphones are available in gooseneck, boundary, handheld and bodypack models.

② Access Point Transceiver (APT)
Sleek and unobtrusive, the APT mounts to a wall or ceiling to provide direct, line-of-sight wireless connection to the microphones. The APT automatically manages the RF spectrum, ensuring consistent, stable audio transport from the microphones to the digital network.

③ Networked Charging Station (NCS)
The charger recharges microphones without battery removal and networks battery status for remote monitoring. The charger also initiates the linking of microphones to an APT, enabling wireless audio transmission.

④ Audio Network Interface (ANI)
The ANI converts digital audio from the network into analog audio to send to a signal processor or amplifier.

⑤ Control Software
The control software allows comprehensive remote management of the MXW system. It operates in a web browser when networked to a computer.

MXW Connections

Requirements: Shielded Cat5e network cable (or higher)

① Power
Connect the power cable from the ANI to an AC power supply. Turn on the power switch.

② Audio Outputs
Connect to a signal processor, amplifier or recording system.

③ Audio Inputs
Connect to a line- or aux-level analog audio source to add it to the digital network.

④ Network Port 1 (PoE)
Connect to MXWAPT Access Point to provide Power over Ethernet (PoE) and networked audio and control.

⑤ Network Port 2
Connect to an additional charger, ANI or computer to provide networked audio and/or control.

⑥ Network Port 3
Connect to an additional charger, ANI or computer to provide networked audio and/or control.

⑦ Network Port 4 (Uplink)
Connect to a corporate network for access to the control software. (When Port 4 Uplink mode is enabled, Dante Audio and Controller data are excluded from this port.)
Audio Network Interface (ANI)

Front Panel

1. Input Channels
   Adds analog line- or aux-level signals to the digital network. When the device is associated to an MXW Group, inputs are automatically routed to Linked microphone channels (Input A to channels 1-4; Input B to 5-8).

2. Output Channels
   Converts digital network audio to an analog output for each channel. When associated to an MXW group, access point channels are automatically routed to the outputs of the ANI.

3. Channel Selector
   Selects a channel to perform the following functions:

<table>
<thead>
<tr>
<th>Action</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Press</td>
<td>• Listen to that channel at the headphone jack</td>
</tr>
<tr>
<td></td>
<td>• Display and adjust the channel output level and attenuation</td>
</tr>
<tr>
<td></td>
<td>• Monitor output signal on the level meter</td>
</tr>
</tbody>
</table>

| Press and Hold  | Mute/unmute a channel. Mute is indicated by the mute LED.                |
| (3 seconds)     |                                                                          |

4. Selected Channel LED
   Illuminates when a channel is selected.

5. Signal Strength LED (sig/clip)
   Indicates audio signal strength for each channel:
   - Green = Normal
   - Amber = Strong
   - Red = Clipping (to eliminate clipping, attenuate the signal level at the audio source)

6. Mute LED
   Illuminates red when the channel output is muted (hold its channel select button for 3 seconds). A muted channel is still routed to the HEADPHONE jack for monitoring or troubleshooting.

7. Input Level Selector
   Set the selected channel to line- or aux-level to match the input signal.

8. Output Level Selector
   Set the selected channel to an output level that matches the connecting device:
   - line: +4 dBu
   - aux: -10 dBV
   - mic: -30 dBV

9. Output Attenuation Control
   Use the up/down buttons to attenuate the channel output from 0 dB (no attenuation) to -24 dB in 1 dB increments, and from -24 to -78 in 3 dB increments.

10. Level Meter
    Displays a selected channel's audio level in dBFS. It is good practice to use -18 dBFS on the output meter as an approximation of 0 VU on an analog meter.

11. Hardware Status LEDs
    Indicate the status of the hardware:

<table>
<thead>
<tr>
<th>LED</th>
<th>Color</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>Green</td>
<td>Unit is powered on.</td>
</tr>
<tr>
<td>Ethernet</td>
<td>Green</td>
<td>Connected to an Ethernet device.</td>
</tr>
<tr>
<td>Network</td>
<td>Green</td>
<td>All connected receive channels are OK (receiving digital audio as expected).</td>
</tr>
<tr>
<td>Audio</td>
<td>Flashing Green</td>
<td>One or more connected receive channels experiencing a subscription error or is unresolved (transmitting device is off, disconnected, renamed or has incorrect network setting).</td>
</tr>
<tr>
<td>Lockout</td>
<td>Red</td>
<td>Front panel gain and mute controls are locked. The LED will blink when a button is pressed while the hardware is locked.</td>
</tr>
</tbody>
</table>

12. Headphone Volume Knob
    Adjusts the volume to the headphone output.

13. Headphone Output
    1/4" (6.35 mm) output jack for monitoring audio going to and from the digital audio network.

Note: Audio is present only when the unit is connected to a digital audio network.
Back Panel

① AC Power
IEC connector 100 - 240 V AC.

② Power Switch
Powers the unit on or off.

③ Output Block Connectors (1-8)
Three-pin, low-voltage differential connector provides a line-, aux- or mic-level analog output for each channel.

④ Chassis Ground (1-8)
Use to directly ground the cable shield to the chassis.

⑤ Input Block Connectors (A,B)
Three-pin, low-voltage differential input connector adds line- or aux-level analog signals to the digital network.
Note: This input is meant for balanced connection. If an unbalanced source is used, such as an IPOD or MP3 player, only use pins 1 (signal) and 3 (ground) of the block connector. See Specifications sections for wiring diagrams.

⑥ Reset Button
Press and hold the button for five seconds to reboot the device with factory default settings.

⑦ Ethernet Status LED (Green)
- Off = no network link
- On = network link established
- Flashing = network link active

⑧ Ethernet Link Speed LED (Amber)
- Off = 10/100 Mbps
- On = 1 Gbps (required for digital audio routing)

⑨ Network Interface
Four-port gigabit switch for connecting components together for a single MXW Group, or for connecting multiple devices to a larger digital audio network. The following is a description of each port:

<table>
<thead>
<tr>
<th>Port</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port 1 (PoE)</td>
<td>Provides Power over Ethernet (PoE) for the Shure access point and functions as a standard gigabit port.</td>
</tr>
<tr>
<td>Ports 2 and 3</td>
<td>Standard gigabit ports enable the connection of another MXW network, additional MXWANIs, a MXWNCS charging stations or an external control system.</td>
</tr>
</tbody>
</table>
| Port 4 (Uplink) | • Normal mode (default): this port functions the same as ports 2 and 3.
• Uplink Mode: only transports control data. This mode blocks network audio and data for Shure Web Discovery Application, Dante Controller and Dante Virtual Soundcard. |
Control Software for the MXW Audio Network Interface

The MXW Audio Network Interface features a control software to manage the analog inputs and outputs of the MXW system, in addition to the 4-port gigabit switch on the back panel of the network interface.

By default, all MXW devices have the password ‘admin’ applied to the control software. When logging in for the first time, enter ‘admin’ into the field to log on as the administrator. The password can be changed from the Preferences tab.

Note: For optimal system performance, the control software should not be open to more than seven tabs or windows.

Operating System Requirements
To operate the control software, the computer must meet the following requirements:

- Windows: Windows XP, Windows Vista and Windows 7
- Apple: Mac OSX 10.6 and higher (Intel Core 2 Duo processor and later)
- Latest version of Adobe® Flash® Player

Accessing the MXW Control Software

The MXW system uses a device-hosted control software that enables comprehensive remote control of key setup, monitoring and management functions. The software is accessible from any PC or Mac on the network, and opens in a web-browser using Adobe® Flash®.

There are two different control interfaces for the MXW system:

- MXW System control software: Accessed from the Access Point Transceiver and used for managing the MXW system.
- Audio Network Interface control software: Accessed from the Audio Network Interface and used for managing that device only.

Follow these steps for accessing MXW control software:

1. Install the Shure Web Device Discovery application.
   Download the Shure Web Device Discovery Application from www.shure.com or from the USB stick supplied with the MXW Access Point Transceiver. (The required Bonjour device discovery tool is bundled with the application and will install automatically.)

2. Ensure the computer is on the MXW network.
   The computer accesses the control software from an embedded web server on the device. All networked devices must be connected to the same network (set to the same subnet).

3. Turn off WiFi
   Turn off the PC's WiFi to force the wired network interface.

4. Launch the Shure Web Device Discovery application.
   Open the application to view all Shure devices on the network that feature an embedded server for control software (MXWAPT, MXWANI and SCM820). Use the Identify button to flash a device's LEDs for easy identification.

5. Open the MXW Control Software
   Double-click on any Access Point Transceiver to open the MXW System control software. Double click on an Audio Network Interface to open that device’s software interface. The application can open the Control Software by IP address or DNS name (selectable from the Preferences drop-down).

6. Enter Default Password
   Enter the default password ‘admin’ to access the control software.

7. Bookmark the Webpage (recommended)
   Bookmark the IP address of the device when it is set to a Static IP address. Bookmark the device's DNS name when the IP mode is set to Automatic (DHCP).

Control Bar

1. Tabs
   The software has an Inputs/Outputs tab for managing audio and a Preferences tab for system configurations.

2. Identify Button
   This button sends a command to the hardware to flash front-panel LEDs for easy identification.

3. Security Level
   Displays the access level of the user: Administrator, Technician, or Guest.

4. Log Off
   Logs the user out of the software.

5. Language Selection
   Selects the language for the control software interface. This setting will be saved to the computer.
Inputs/Outputs Tab

1. **Channel Name**
   Channel name is customizable by clicking in the text box. Names can be up to 12 characters long.

2. **Input Gain Setting (A, B)**
   Sets the analog input gain level: Line (default) or Aux.

3. **Input Audio Meter**
   Displays input audio levels prior to the analog-to-digital converter.

4. **Mute Button**
   Mutes or unmutes the channel’s audio. The button illuminates red when a channel is muted.

5. **Output Gain**
   Sets the output gain level.

6. **Output Audio Meter**
   Displays output audio levels prior to the digital-to-analog converter.

7. **Attenuation**
   Output attenuation is adjustable in 1 dB increments.

8. **Notes**
   Save project notes here, such as installation dates or IP information.

Preferences Tab

1. **Language**
   Selects the language for the control software when the ANI is in Standalone Mode. In Standalone Network mode, this is defined in the MXW System control software.

2. **Device Serial Number**
   Displays the devices serial number.

3. **Firmware Version**
   Displays the current firmware version of the device.

4. **Reset Button**
   Reboots the device with factory default settings.

5. **Register This Product Link**
   Click to register the device at www.shure.com to receive product and software updates.

6. **Audio Routing Mode**
   - **MXW Mode**: Enables automatic channel routing when the device is a part of an MXW group (assigned from the MXW System control software).
   - **Standalone Mode**: Channels must be routed manually with Dante Controller software.

7. **Device Name**
   Device names can be customized with up to 31 characters, except ‘=’, ‘;’, or ‘@’.

8. **Addressing Mode**
   - **Auto**: IP settings are Link-Local or automatically accepted from a DHCP server.
   - **Manual**: IP settings (IP Address, Subnet Mask, and Gateway) are static and are entered manually.

9. **MAC Address**
   Unique identifier assigned to each network interface.

10. **Port 4 Mode**
    Configures the Port 4 of the network interface:
    - **Switched Mode (default)**: Full Ethernet support on port 4.
    - **Uplink Mode**: Only control data is transported. Multicast traffic for Dante digital audio and the Shure Web Device Discovery application is restricted.

11. **Front Panel Lockout**
    Disables the front panel controls on the hardware. Channels can still be selected for monitoring at the headphone jack.

12. **Password**
    The default password for the device is ‘admin’.
    - **Admin (default)**: Full editing rights. The Admin can enable or disable a Tech-level logon.
    - **Tech**: Rights are limited to the Inputs/Outputs page (hardware functions only).
    - **Guest**: Monitoring only.
Dante™ Software by Audinate

Audinate software provides additional function and control of the Dante™ digital audio network. Visit Audinate's website for instructions for download and installation.

**Dante Controller**

Dante Controller (DC) is a free software by Audinate that is used to configure and manage a network of Dante devices. Use it to route channels between Dante-enabled devices and to monitor the status of the device, clock, and network.

*Note:* DC software is not required for routing audio within the MXW system. Use caution when using DC, as changing settings may interfere with MXW system functionality.

**Dante Virtual Soundcard**

Dante Virtual Soundcard (DVS) acts as an audio driver used to monitor and record digital audio without additional equipment. DVS uses a computer’s standard Ethernet ports to transmit and receive up to 64 channels from any Dante enabled device on the same network.

---

**Shure Firmware Update Manager**

Firmware is embedded software in each component that controls functionality. Periodically, new versions of firmware are developed to incorporate additional features and enhancements. To take advantage of design improvements, new versions of the firmware can be uploaded and installed using the Firmware Manager tool. Software is available for download from http://www.shure.com.

Perform the following steps to update the firmware:

**CAUTION!** Ensure the device has a stable network connection during the update. Do not turn off the device until the update is complete.

1. Connect the device and computer to the same network (set to the same subnet).
   - To update MXW transmitters, place them in an MXW Networked Charging Station that is connected to the network.
   - If the MXW Audio Network Interface is connected via Port 4, ensure that the Network mode is set to Switched mode (default) from the Preferences tab of the ANI control software.
2. Download Firmware Update Manager and install the application.
3. Open the application.
4. Click Check For Updates button to view new firmware versions available for download.
5. Select the desired firmware and press Download to download it to the Firmware Library.
6. From the Update tab, select the new firmware and press Send Updates to begin the firmware update, which overwrites the existing firmware on the device.

**Firmware Release Requirements**

Microflex Wireless devices comprise a network with multiple communications protocols that work together to ensure proper operation. The recommended best practice is that all MXW devices are on an identical release. To view the firmware of each MXW device on the network, open the Utility page of the MXW control software.

The format for Shure device’s firmware is MAJOR.MINOR.PATCH. (Ex. 1.6.2 where 1 is the Major firmware level, 6 is the Minor firmware level, and 2 is the Patch firmware level.) At minimum, devices that operate on the same subnet should have identical MAJOR and MINOR release numbers.

- Devices of different MAJOR releases are not compatible.
- Differences in the PATCH firmware release level may introduce undesired inconsistencies.
Audio Network Interface (ANI)

Audio Frequency Response
20 Hz to 20 kHz (+1, −1.5 dB)

Dynamic Range
20 Hz to 20 kHz, A-weighted, typical

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Impedance</th>
<th>Clipping Level (minimum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog-to-Dante</td>
<td>113 dB</td>
<td>+26.2 dBV +16.2 dBV −3.8 dBV</td>
</tr>
<tr>
<td>Dante-to-Analog</td>
<td>110 dB</td>
<td></td>
</tr>
</tbody>
</table>

Output Noise
20 Hz to 20 kHz, A-Weighted, typical

<table>
<thead>
<tr>
<th>Mode</th>
<th>Line</th>
<th>Aux</th>
<th>Mic</th>
</tr>
</thead>
<tbody>
<tr>
<td>−84.5 dBV</td>
<td>−95.2 dBV</td>
<td>−106.5 dBV</td>
<td></td>
</tr>
</tbody>
</table>

THD+N
20 Hz to 20 kHz +4 dBu analog input, −10 dBFS digital input
<0.05%

Polarity
Non-inverting, any input to any output

Dimensions
44 mm x 483 mm x 366 mm (1.7 in. x 19.0 in. x 14.4 in.), H x W x D

Weight
MXWANI4 3.1 kg (6.9 lbs)
MXWANI8 3.2 kg (7.1 lbs)

Housing
Steel; Extruded aluminum

Power Requirements
100 to 240 V AC, 50-60 Hz, 1 A

Operating Temperature Range
−18°C (0°F) to 63°C (145°F)

Storage Temperature Range
−29°C (-20°F) to 74°C (165°F)

Analog Connections

- Outputs
- Inputs
- Headphone Output

Digital Signal Processing

AD/DA Converter
24-bit, 48 kHz

Latency
Estimated Nominal, ±0.1 ms

Networking

Network Interface
Four-Port Gigabit Ethernet Switch, Dante digital audio

Uplink Port (Port 4)
Selectable, blocks multicast traffic

Power over Ethernet (PoE)
Provided on Port 1 to power MXWAPT

Cable Requirements
Cat 5e or higher, shielded, 100 m maximum between network devices

Network Addressing Capability
DHCP, link-local, static

Wiring Diagram
Important Product Information

The equipment is intended to be used in professional audio applications.

Note: This device is not intended to be connected directly to a public internet network.

EMC conformance to Environment E2: Commercial and Light Industrial. Testing is based on the use of supplied and recommended cable types. The use of other than shielded (screened) cable types may degrade EMC performance.

Changes or modifications not expressly approved by Shure Incorporated could void your authority to operate this equipment.

Industry Canada ICES-003 Compliance Label:

CAN ICES-3 (B)/NMB-3(B)

Authorized under the verification provision of FCC Part 15B.

Please follow your regional recycling scheme for batteries, packaging, and electronic waste.

Information to the user

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and the receiver.
• Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

Certifications

Conforms to electrical safety requirements based on IEC 60065.

This product meets the Essential Requirements of all relevant European directives and is eligible for CE marking.

The CE Declaration of Conformity can be obtained from Shure Incorporated or any of its European representatives. For contact information please visit www.shure.com

The CE Declaration of Conformity can be obtained from: www.shure.com/europe/compliance

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