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WONDOM ADAU1701

WONDOM ADAU1701 DSP Preamp: 2-In 4-Out Digital Signal Processor Instruction Manual

Model: ADAU1701

Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your WONDOM ADAU1701 DSP Preamp. This unit is designed for advanced audio signal processing, offering a 2-input, 4-output configuration with digital crossover capabilities and support for SigmaStudio programming.
Key features include:

- Powered by ADAU1701 DSP, a 28/56bit Digital Signal Processor Engine.
- 24bit ADC/DAC Resolution Ratio with a 48kHz Sampling Rate.
- Unbalanced 2-Input, 4-Output Preamp Unit.
- USB Type-C Port for DC 5V Power.
- Four Potentiometers for High-Pass Filter (HPF), Low-Pass Filter (LPF), and Volume Control.
- Integrated Mute & Phase Switches.
- Supports SigmaStudio Programming when connected with an ICP5 programmer.
- Open-sourced Demo Program & HEX Files are provided for restoring factory settings.

Package Contents

Please verify that all items are present in the package:

- WONDOM ADAU1701 DSP Preamp Unit
- USB Type-C Cable (for power)
- User Manual (this document)
- (Optional: ICP5 Programmer, sold separately for advanced programming)

Safety Information

- Ensure the power supply matches the device's requirements (DC 5V, 1A via USB Type-C).

- Do not expose the unit to moisture or extreme temperatures.
- Avoid opening the enclosure unless you are a qualified technician.
- Keep out of reach of children.

Setup

1. Physical Connections

Refer to the diagrams below for proper connection of audio inputs, outputs, and power.

Figure 1: Rear Panel Connections. This image shows the rear panel of the ADAU1701 DSP Preamp, highlighting the DC Input (5V, 1A), ICP Port, Line In (ADC0 Left, ADC1 Right), and Line Out (DAC0 Right, DAC1 Left, DAC2 Right, DAC3 Left) RCA jacks.

- **Power Connection:** Connect a DC 5V, 1A power supply to the USB Type-C port labeled "DC INPUT 5V, 1A" on the rear panel.
- **Audio Input:** Connect your audio source (e.g., media player, pre-amplifier) to the "LINE IN" RCA jacks (ADC0 Left, ADC1 Right).

- **Audio Output:** Connect your amplifiers or powered speakers to the "LINE OUT" RCA jacks. The default configuration provides 2-channel mid-range output (DAC2 Right, DAC3 Left) and 2-channel bass output (DAC0 Right, DAC1 Left) for a 2-way digital crossover setup.
- **ICP Port:** This port is used for connecting an ICP5 programmer (sold separately) for advanced SigmaStudio programming.

2. Initial Power On

Once all connections are secure, apply power to the unit. The "POWER" LED on the front panel should illuminate, indicating the device is operational.

Operating Instructions

The WONDOM ADAU1701 DSP Preamp features several controls on its front panel for direct adjustment, as well as advanced programming capabilities via SigmaStudio.

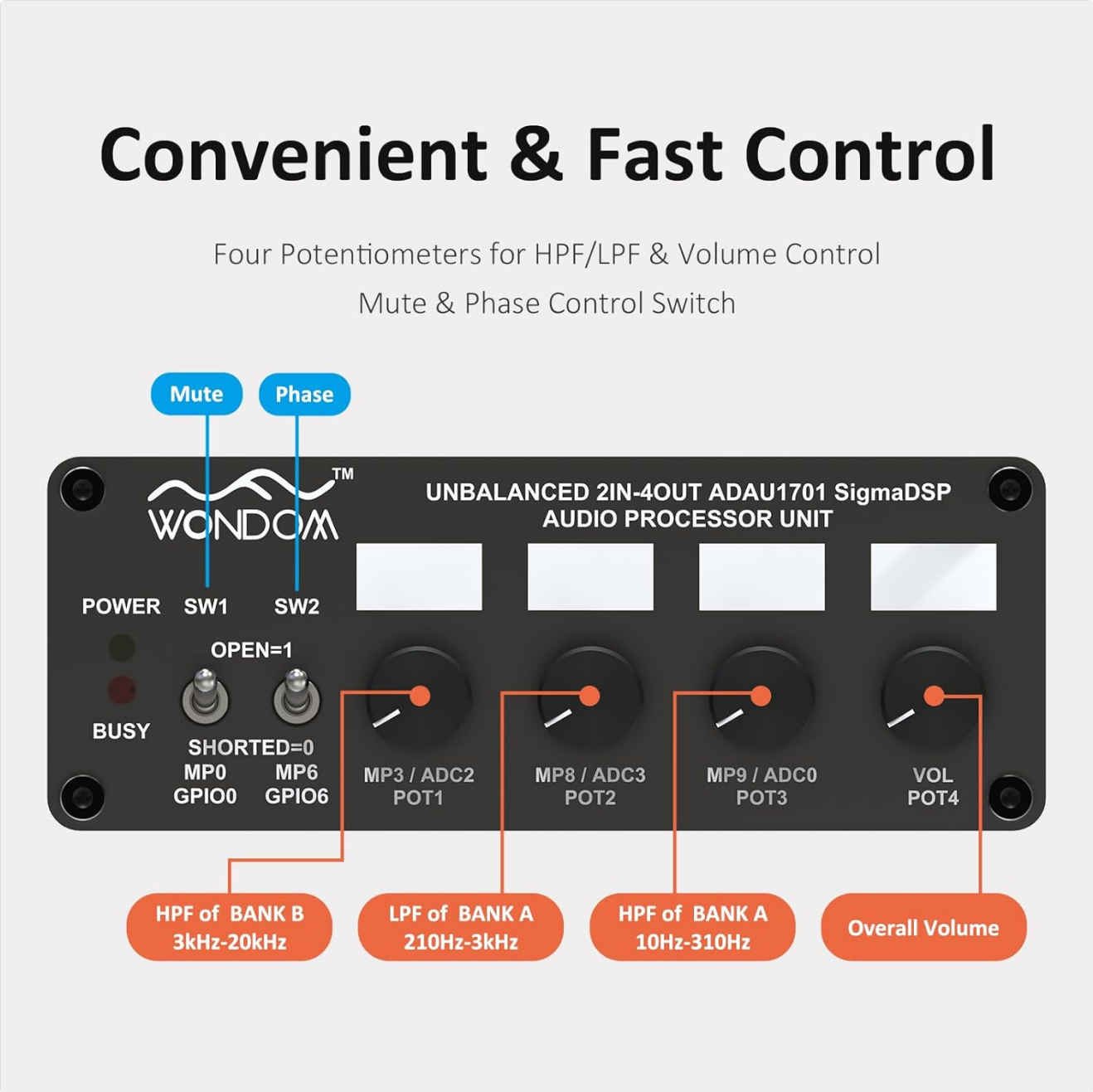

Figure 2: Front Panel Controls. This image displays the front panel, showing the Power LED, Busy LED, SW1 (Mute) and SW2 (Phase) switches, and four potentiometers (POT1, POT2, POT3, POT4) for various audio adjustments.

Front Panel Controls:

- **POWER LED:** Indicates the unit is powered on.
- **BUSY LED:** Indicates DSP activity.
- **SW1 (Mute Switch):** Toggles audio output mute on/off.
- **SW2 (Phase Switch):** Adjusts the phase of the audio output.
- **POT1 (MP3 / ADC2):** Controls the High-Pass Filter (HPF) for Bank B (3kHz-20kHz).
- **POT2 (MP8 / ADC3):** Controls the Low-Pass Filter (LPF) for Bank A (210Hz-3kHz).
- **POT3 (MP9 / ADC0):** Controls the High-Pass Filter (HPF) for Bank A (10Hz-310Hz).
- **POT4 (VOL):** Controls the overall volume.

Digital Crossover Configuration:

The unit's default output is configured as a 2-way digital crossover, providing dedicated outputs for bass and mid-range frequencies.

Figure 3: 2-In, 4-Out Digital Crossover. This diagram shows the RCA jack assignments for 2-channel Line Input, 2-channel Mid-range Output, and 2-channel Bass Output, facilitating a 2-way digital crossover setup.

- **2CH Line Input:** ADC0 Left (White), ADC1 Right (Red).
- **2CH Mid-range Output:** DAC2 Right (Red), DAC3 Left (White).
- **2CH Bass Output:** DAC0 Right (Red), DAC1 Left (White).

SigmaStudio Programming:

For advanced customization and fine-tuning of the DSP functions, the unit supports programming via Analog Devices' SigmaStudio software. An ICP5 programmer (sold separately) is required to connect the DSP unit to your computer.

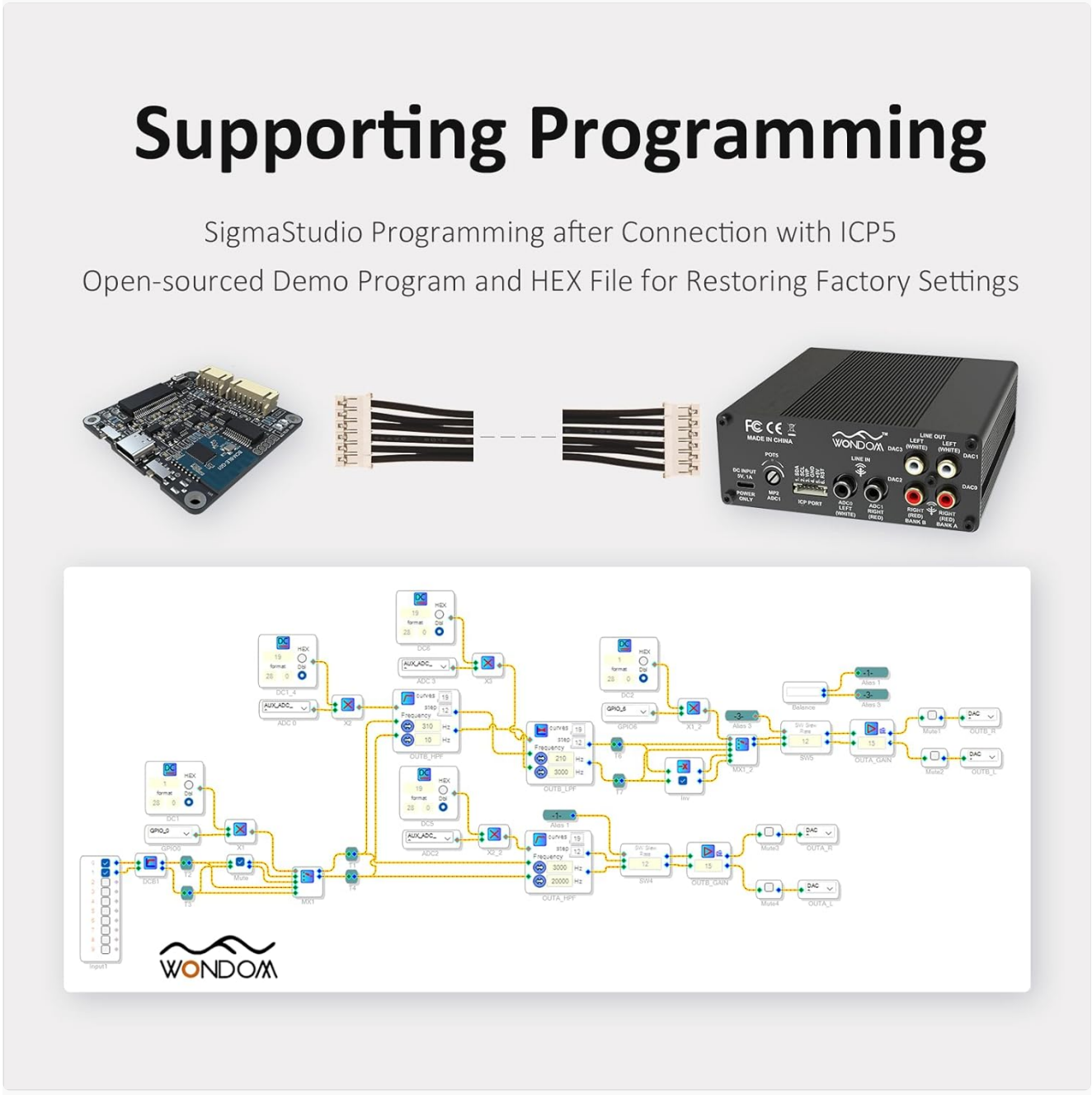

Figure 4: SigmaStudio Programming Setup. This image illustrates the connection between the DSP unit and an ICP5 programmer, along with a visual representation of the SigmaStudio graphical programming interface.

- **Software:** Download and install SigmaStudio from the Analog Devices website.
- **Hardware:** Connect the ICP5 programmer to the ICP Port on the DSP unit and to your computer via USB.
- **Programming:** Utilize the open-sourced demo program and HEX files provided by WONDOM to get started or to restore factory settings. All terminal functions can be tailored to specific needs using SigmaStudio.

Maintenance

- Keep the unit clean by wiping it with a soft, dry cloth.
- Avoid using harsh chemicals or abrasive cleaners.
- Ensure adequate ventilation around the unit to prevent overheating.
- Regularly check all cable connections for secure fit.

Troubleshooting

Problem	Possible Cause	Solution
No power / Power LED off	Incorrect power supply, loose connection, faulty cable.	Verify DC 5V, 1A power supply. Check USB Type-C cable connection. Try a different power source or cable.
No audio output	Incorrect input/output connections, Mute switch engaged, volume too low, faulty audio cables.	Check all RCA connections. Ensure SW1 (Mute) is disengaged. Increase POT4 (Volume). Test with different audio cables.
Audible hiss or noise	Ground loop, interference, power supply noise, high gain settings.	Ensure all components are properly grounded. Use a high-quality, stable 5V power supply (a separate USB power bank/battery can help reduce noise from PC USB). Reduce gain settings if applicable.
Cannot connect to SigmaStudio	ICP5 programmer not connected or faulty, DSP not powered, incorrect software drivers.	Ensure ICP5 programmer is correctly connected to the DSP and computer. Verify DSP unit is powered on. Install SigmaStudio drivers in administrator mode (as suggested by user reviews).

Specifications

Feature	Detail
DSP Chip	ADAU1701 (28/56bit Digital Signal Processor)
ADC/DAC Resolution	24-bit
Sampling Rate	48 kHz
Input Configuration	2-Input (Unbalanced RCA)
Output Configuration	4-Output (Unbalanced RCA, default 2-way digital crossover)
Power Supply	DC 5V, 1A (via USB Type-C)
Controls	4 Potentiometers (HPF/LPF/Volume), Mute Switch, Phase Switch
Programming Support	SigmaStudio (requires ICP5 programmer, sold separately)

Feature	Detail
Dimensions (L x W x H)	4.72 x 4.72 x 1.77 inches
Weight	1.23 pounds
Housing	Sleek Aluminum Enclosure

Warranty and Support

WONDOM products are manufactured by Sure Electronics. For warranty information, technical support, and further assistance, please refer to the official Sure Electronics website or contact their customer service directly. Keep your purchase receipt as proof of purchase for warranty claims.
Manufacturer: Sure Electronics
For additional resources and community support regarding SigmaStudio programming, online forums and tutorials can be a valuable resource.

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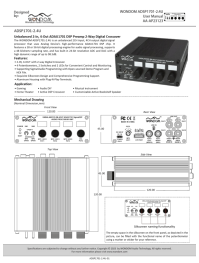
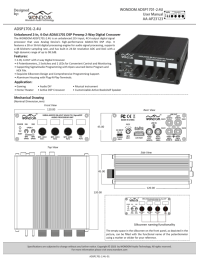
Related Documents - ADAU1701

	WONDOM ADSP1701-2.4U: Unbalanced 2-In, 4-Out DSP Preamp & 2-Way Digital Crossover User Manual Comprehensive user manual for the WONDOM ADSP1701-2.4U, an unbalanced 2-channel input, 4-channel output digital signal processor featuring the Analog Device ADAU1701 DSP chip. Learn about its features, specifications, block diagram, connections, programming, and troubleshooting.
	How to Program WONDOM ADAU1701 DSP Unit with SigmaStudio This guide provides step-by-step instructions on how to program the WONDOM ADAU1701 DSP Unit using SigmaStudio. It covers product overview, necessary preparations, installation of SigmaStudio, ICP5 settings, connection procedures, programming, debugging, restoring factory settings, troubleshooting, and an explanation of the DSP's correspondence and controls.
	WONDOM ADSP1701-2.4U User Manual: Digital Audio Processor User manual for the WONDOM ADSP1701-2.4U, an unbalanced 2-In, 4-Out ADAU1701 DSP Preamp with a 2-Way Digital Crossover. Details features, specifications, mechanical drawings, block diagrams, default configurations, troubleshooting, and warranty information.

	[WONDOM ICP1 User Guide: In-Circuit Programmer for ADAU1701] Comprehensive user guide for the WONDOM ICP1, an in-circuit programmer designed for customer programming of WONDOM products, specifically the ADAU1701 digital signal processor. This guide covers product overview, interface definitions, setup procedures, programming steps, firmware restoration, and troubleshooting for WONDOM audio systems like APM2 and JAB3.
	[WONDOM ICP3 User Guide: In-Circuit Programmer with BLE Bluetooth for App Control] Comprehensive user guide for the WONDOM ICP3, an in-circuit programmer with BLE Bluetooth for app control. Learn about programming, app control, setup, troubleshooting, and more for WONDOM audio products like APM2 and JAB3.
	[WONDOM JAB4 4 x 30W Class D Amplifier Board with ADAU1701 DSP & Bluetooth 5.0] Datasheet for the WONDOM JAB4, a versatile 4 x 30W Class D audio amplifier board. It features the ADAU1701 DSP and Bluetooth 5.0, supporting multiple audio modes (4.0, 2.1, 2.0, 0.2) and inputs. This document details key features, electrical and audio specifications, block diagram, potentiometer functions, mechanical dimensions, and comprehensive connection pinouts for DIY audio projects, home audio, and industrial applications.