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S.M.S.L DS100

S.M.S.L DS100 USB MQA DAC and Headphone Amplifier User Manual

1. Introduction

The S.M.S.L DS100 is a high-performance Digital-to-Analog Converter (DAC) and headphone amplifier designed to deliver exceptional audio quality. Featuring the Cirrus Logic CS43131 audio decoding chipset and a third-generation XMOS XU-316 USB processor, it supports MQA/MQA-CD decoding, PCM up to 32bit/768kHz, and DSD256. This compact device offers versatile connectivity with USB, optical, and coaxial inputs, alongside dual headphone outputs (6.35mm and 4.4mm) for a wide range of audio setups.

The DS100 is engineered with a dedicated audio clock processing circuit (CK-03) to minimize jitter and a high-efficiency, low-noise LDO power supply for stable performance. Its robust aluminum alloy casing, precision-machined using CNC technology, ensures durability and high-quality gold-plated input and output terminals for reliable connections.

2. Safety Information

- Do not disassemble the unit.
- Do not expose the unit to rain or moisture.
- Avoid placing the unit near heat sources or in direct sunlight.
- Ensure proper ventilation around the device.
- Use only the specified power adapter (if applicable) to prevent damage.

3. Product Overview

Key Features

- High-performance MQA DAC with CS43131 chip, achieving 0.00017% (-115dB) distortion.
- USB DAC with third-generation XMOS XU-316 processor, supporting PCM up to 32bit/768kHz and DSD256.
- Integrated CK-03 clock processing circuit for reduced jitter.
- Multiple low-noise LDO power supplies for stable power delivery.
- Dual headphone outputs: 6.35mm single-ended and 4.4mm balanced.

- Compact design with CNC-machined aluminum alloy casing and gold-plated terminals.

Front and Rear Panel Components

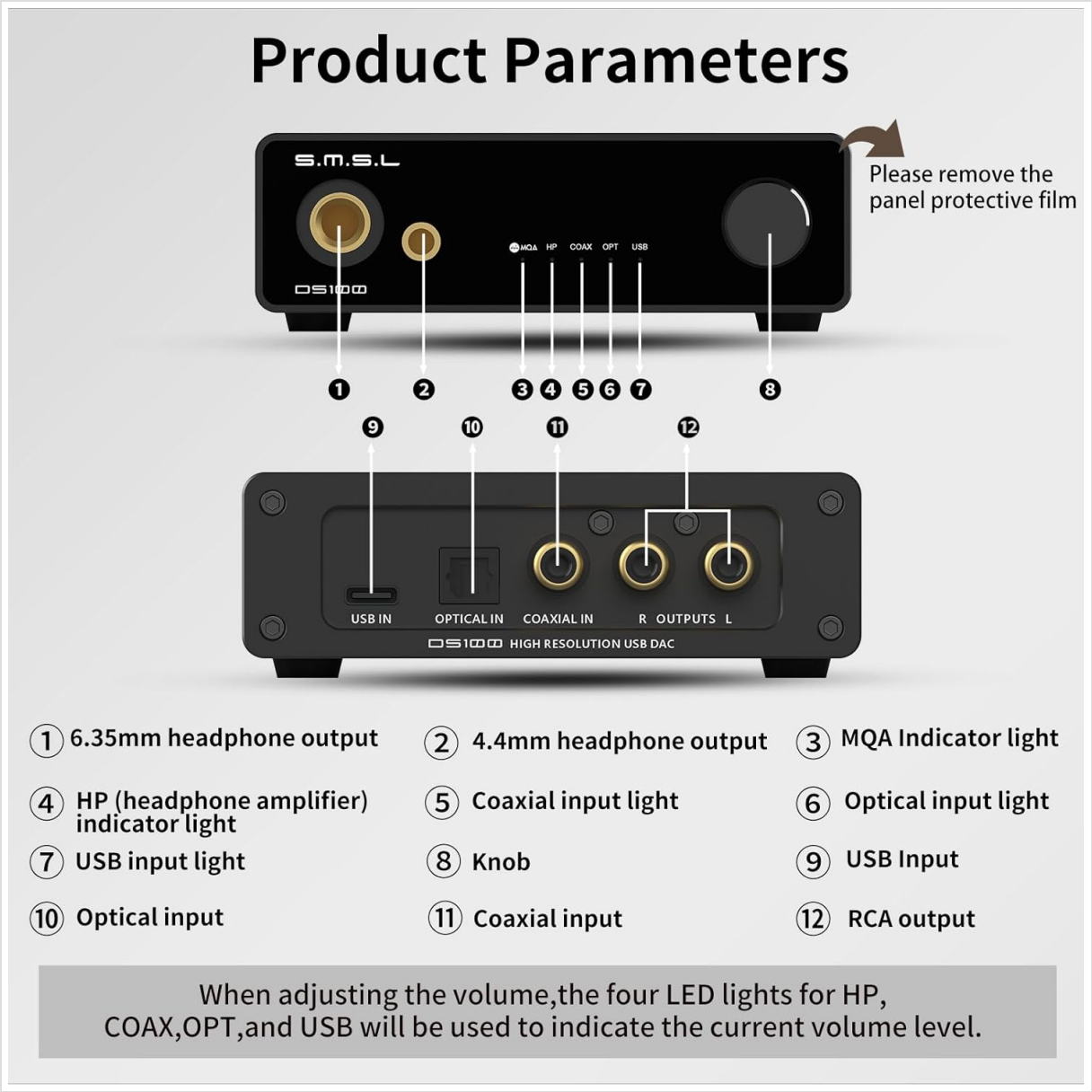

Figure 1: S.M.S.L DS100 Front and Rear Panel Layout

This image displays the front and rear panels of the S.M.S.L DS100, detailing the location and function of each port and control. The front panel features headphone outputs and a control knob, while the rear panel includes various input and output connections.

1. **6.35mm Headphone Output:** Standard single-ended headphone jack.
2. **4.4mm Headphone Output:** Balanced headphone jack.
3. **MQA Indicator Light:** Illuminates when MQA content is detected.
4. **HP (Headphone Amplifier) Indicator Light:** Indicates headphone output is active.
5. **Coaxial Input Light:** Indicates coaxial input is selected.
6. **Optical Input Light:** Indicates optical input is selected.
7. **USB Input Light:** Indicates USB input is selected.
8. **Knob:** Multi-function control for volume adjustment and input selection.
9. **USB Input:** USB-C port for connecting to a computer or other USB audio source.
10. **Optical Input:** Optical S/PDIF input.

11. **Coaxial Input:** Coaxial S/PDIF input.
12. **RCA Output:** Analog RCA line outputs (Right and Left channels).

Figure 2: S.M.S.L DS100 Front View

This image shows the front of the S.M.S.L DS100, highlighting its compact form factor, dual headphone jacks, and the multi-function control knob.

Figure 3: S.M.S.L DS100 in a Desktop Setup

This image illustrates the S.M.S.L DS100 in a typical desktop environment, connected to a computer, emphasizing its small footprint and integration into an audio system.

4. Setup

4.1 Driver Installation (Windows)

For Windows operating systems, a specific driver is required for optimal performance. Please download the latest driver from the official S.M.S.L website. Navigate to the 'Support' section, then 'Product Driver Download', and locate the DS100 driver. Follow the on-screen instructions for installation.

4.2 Connecting Audio Sources

- **USB Input:** Connect a USB-C cable from your computer or compatible audio source to the USB IN port (9) on the rear panel.
- **Optical Input:** Connect an optical cable from your audio source (e.g., TV, CD player) to the OPTICAL IN port (10).
- **Coaxial Input:** Connect a coaxial cable from your audio source to the COAXIAL IN port (11).

4.3 Connecting Headphones and Amplifiers

- **Headphones:** Plug your headphones into either the 6.35mm (1) or 4.4mm (2) headphone output jacks on the front panel. The DS100 provides sufficient power for a range of headphones, including 7 Vrms for 600 Ω high-impedance headphones and 61mW for 16 Ω low-impedance headphones.
- **External Amplifier:** For connecting to an external amplifier or powered speakers, use RCA cables to connect the RCA OUTPUTS L/R (12) on the rear panel to your amplifier's inputs.

4.4 Powering On

The DS100 is typically powered via its USB connection. Once connected to a powered USB port, the device should automatically power on. Ensure all connections are secure before use.

5. Operating Instructions

5.1 Input Selection

The multi-function knob (8) on the front panel is used to select the input source. Rotate the knob to cycle through the available inputs: USB, Optical, and Coaxial. The corresponding indicator light (5, 6, or 7) will illuminate to show the currently selected input.

5.2 Volume Control

The knob (8) also controls the volume. Rotate the knob to adjust the output volume. When adjusting the volume, the four LED lights (HP, COAX, OPT, and USB) will temporarily indicate the current volume level.

5.3 MQA/MQA-CD Playback

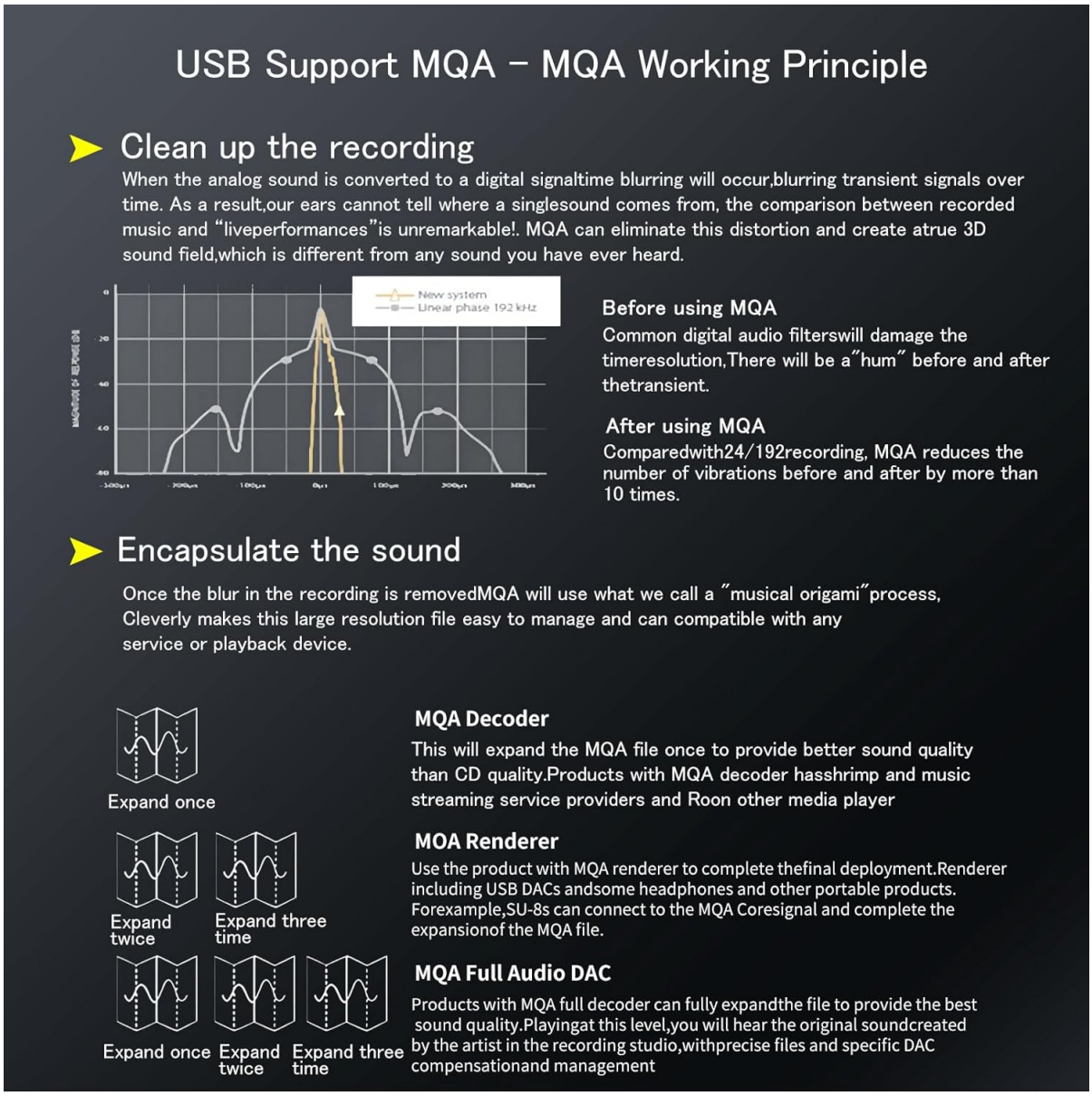

Figure 4: MQA Working Principle

This diagram illustrates how MQA technology works to clean up and encapsulate audio recordings, ensuring high-resolution playback. The DS100 supports full MQA decoding.

Figure 5: MQA-CD Support

This image demonstrates how the DS100 supports MQA-CD playback. Your CD player's digital output (optical or coaxial) can be fed to the DS100, which will decode the MQA signal, restoring the original high-resolution audio as intended by the recording studio.

The DS100 is capable of decoding MQA (Master Quality Authenticated) audio files, which deliver the sound of the original master recording. When playing MQA content, the MQA indicator light (3) will illuminate. For MQA-CD playback, connect your CD player's digital output to the DS100's optical or coaxial input.

5.4 Headphone Output Selection

The DS100 features both 6.35mm single-ended and 4.4mm balanced headphone outputs. You can use either output depending on your headphone's connector type. Ensure your headphones are properly connected before playing audio.

Figure 6: Dual Headphone Jack Design

This image highlights the dual headphone jack design of the S.M.S.L DS100, featuring both 4.4mm balanced and 6.35mm single-ended outputs, catering to various headphone types.

6. Maintenance

- Clean the unit with a soft, dry cloth. Do not use liquid cleaners or aerosols.
- Keep the unit free from dust and debris.
- Avoid extreme temperatures and humidity.

7. Troubleshooting

- **No Sound Output:**
  - Check all cable connections (USB, optical, coaxial, headphones, RCA).
  - Ensure the correct input source is selected on the DS100.
  - Verify the volume level on both the DS100 and your audio source/computer.
  - For Windows users, confirm the S.M.S.L USB DAC is selected as the default playback device in sound settings and that the correct sample rate is chosen.

- **Distorted Sound:**
  - Check the quality of your audio source file.
  - Ensure cables are not damaged or loosely connected.
  - Reduce the volume if the distortion occurs at high levels.
- **Windows Driver Issues:**
  - If the device is not recognized or functions incorrectly on Windows, ensure the latest driver is installed from the official S.M.S.L website.
  - Try connecting the DS100 to a different USB port on your computer.

8. Specifications

Figure 7: S.M.S.L DS100 Product Information and Specifications

This image provides a comprehensive table of the S.M.S.L DS100's technical specifications, including dimensions, input/output details, and performance metrics.

Feature	Specification

Feature	Specification
Brand	S.M.S.L
Model Number	DS100
Mounting Type	Standalone
Interface Type	Coaxial, Optical, USB
Number of Channels	2
Product Dimensions	3.5"L x 3.5"W (approx. 89mm x 89mm)
Material	Aluminum, Gold
Item Weight	6.2 ounces (approx. 180g)
Input	Optical/Coaxial/USB
Output Level	2Vrms
THD+N	0.00017% (-115dB)
Dynamic Range	127dB
SNR	127dB
USB Compatibility	Windows 7/8/8.1/10/11 (needs Drivers), Mac OSX 10.6+, Linux (Driverless), Android
Power Consumption	<1W
Standby Power	<0.1W
USB Sampling Rate & Bit Depth	PCM 44.1-768kHz (32bit), DSD 2.8224-11.2896MHz (1bit), DoP 256
Optical/Coaxial Sampling Rate & Bit Depth	PCM 44.1-192kHz (24bit), DoP 64

Figure 8: S.M.S.L DS100 Performance Indicators

This image presents various graphs illustrating the measured performance of the S.M.S.L DS100, including distortion degree, dynamic range, signal-to-noise ratio (SNR), and frequency response, demonstrating its high fidelity audio capabilities.

9. Warranty and Support

The S.M.S.L DS100 typically comes with a 1-year warranty from the date of purchase. For specific warranty details and terms, please refer to the documentation included with your product or contact S.M.S.L customer support.

S.M.S.L is committed to providing excellent customer service. For technical assistance, troubleshooting, or any product-related inquiries, 24-hour online service is available. Please visit the official S.M.S.L website for support resources, driver downloads, and contact information.

10. Product Video

Your browser does not support the video tag.

Video 1: S.M.S.L DS100 USB MQA DAC & Headphone Amplifier Overview

This video provides a visual overview of the S.M.S.L DS100 USB MQA DAC and Headphone Amplifier, showcasing its design, features, and how it integrates into an audio setup. It highlights the device's compact size and various connectivity options.

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Related Documents - DS100

	SMSL AO300 User Manual: Hi-Fi DAC and Amplifier Guide Comprehensive user manual for the SMSL AO300 Hi-Fi DAC and Amplifier, detailing features, specifications, operation, safety, and warranty information.
	S.M.S.L AO300 PRO User Manual - High-Resolution Audio Amplifier Comprehensive user manual for the S.M.S.L AO300 PRO high-resolution audio amplifier, detailing safety precautions, warranty terms, features, technical specifications, component descriptions, operational instructions, remote control usage, connectivity guides, and package contents.
	SMSL RAW-MDA 1 User Manual and Specifications Comprehensive user manual and technical specifications for the SMSL RAW-MDA 1 audio DAC and amplifier, covering features, functions, connectivity, and operation.
	S.M.S.L DL100 High-Resolution USB DAC User Manual | Features, Specifications, and Operation Comprehensive user manual for the S.M.S.L DL100 High-Resolution USB DAC. This guide covers safety notes, warranty terms, product features, detailed specifications, remote control operation, display interface, instructions for use, MQA playback, and connecting to ARC-compatible TVs via HDMI.
	SMSL D200 High-Resolution USB DAC User Manual Comprehensive user manual for the SMSL D200 High-Resolution USB DAC, covering safety, warranty, features, technical specifications, operation, and MQA playback.
	S.M.S.L AL400 High-Resolution Power Amplifier User Manual Comprehensive user manual for the S.M.S.L AL400 High-Resolution Power Amplifier, covering safety, warranty, features, specifications, operation, connections, MQA playback, and remote control instructions.