

S.M.S.L D400 PRO

S.M.S.L D400 PRO High Resolution USB DAC User Manual

Model: D400 PRO

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1. Introduction

This manual provides detailed instructions for the proper use and maintenance of your S.M.S.L D400 PRO High Resolution USB DAC. Please read this manual thoroughly before operating the device to ensure optimal performance and longevity. The S.M.S.L D400 PRO is a high-performance Digital-to-Analog Converter designed for audiophiles, featuring advanced AK449EX+AK4191EQ chips, MQA decoding, XMOS XU-316 USB interface, and support for DSD512 and PCM 32bit/768kHz audio formats.

2. Safety Information

- Do not disassemble the unit. Refer all servicing to qualified personnel.
- 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 unit.
- Use only the specified power adapter.
- Keep the unit away from strong magnetic fields.

3. Package Contents

Please check that all items are present in the package:

- S.M.S.L D400 PRO USB DAC
- Remote Control
- USB Cable
- Power Cable

- Bluetooth Antenna
- User Manual (this document)

4. Product Overview

4.1 FRONT PANEL



Figure 4.1: Front view of the S.M.S.L D400 PRO, showing the display and control knob.

The front panel features a high-resolution display that shows current input, sample rate, and volume level. A multi-function knob allows for navigation through menus and volume adjustment.

4.2 REAR PANEL



Figure 4.2: Rear view of the S.M.S.L D400 PRO, displaying various input and output ports.

The rear panel provides a comprehensive array of input and output options for versatile connectivity with various audio systems.

4.3 LABELED DIAGRAM AND DIMENSIONS



Figure 4.3: Detailed diagram of the S.M.S.L D400 PRO with labeled components and dimensions.

The diagram above illustrates the key components and their locations on the device, along with its physical dimensions for placement planning.

1. **Knob:** Multi-function control for volume and menu navigation.
2. **Remote Window:** Infrared receiver for the remote control.
3. **Indicator Light:** Status indicator.
4. **Display:** Shows operational information.
5. **XLR Output:** Balanced analog audio output.
6. **Bluetooth Antenna:** Connection point for the Bluetooth antenna.
7. **RCA Output:** Unbalanced analog audio output.
8. **AES/EBU Input:** Professional digital audio input.
9. **Coaxial Input:** Digital audio input.
10. **Optical Input:** Digital audio input.
11. **USB Input:** USB-B input for computer connection.
12. **I2S Input:** High-performance digital audio input.

13. **AC IN:** Power input (AC 100-240V).

5. Key Features

The S.M.S.L D400 PRO incorporates advanced technologies to deliver exceptional audio performance:

- **Flagship DAC Chips:** Utilizes AK4191EQ and AK4499EX for high-fidelity digital-to-analog conversion.
- **High-Resolution Display:** Features a fully laminated tempered glass display panel for clear information display.
- **Advanced Bluetooth Connectivity:** Equipped with a high-end Qualcomm Bluetooth chip supporting LDAC (24bit/96kHz), aptX/HD, SBC, and AAC codecs.
- **XMOS XU-316 USB Interface:** Provides robust and high-performance USB audio processing.
- **MQA Support:** Full MQA and MQA-CD decoding capabilities.
- **High Sampling Rates:** Supports DSD512 and PCM up to 32bit/768kHz.
- **Multiple Digital Filters:** Offers up to 7 digital filter modes for PCM signals.
- **Remote Control:** Includes a full-function remote control for convenient operation.
- **User-Upgradable Firmware:** Allows users to update the device firmware.

5.1 FEATURE HIGHLIGHTS



Figure 5.1: Overview of key technical features including Hi-Res Audio, MQA, DAC chips, distortion levels, op-amps, XMOS, DSD, PCM, filters, remote, and firmware upgrade.

5.2 CORE TECHNOLOGIES



Figure 5.2: The S.M.S.L D400 PRO highlighting the AK4499EX and AK4191EQ DAC chips.

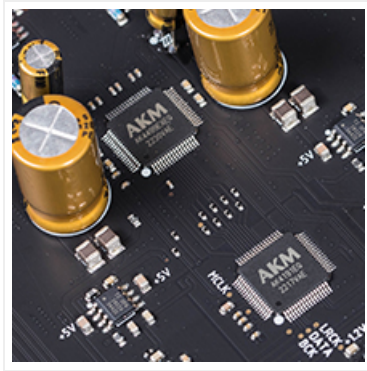


Figure 5.3: Close-up view of the AKM DAC chips on the circuit board.



Figure 5.4: Close-up view of the XMOS XU-316 USB processor chip.



Figure 5.5: Illustration of the D400 PRO's high-end Bluetooth chip supporting various codecs.

Support MQA full decoding

MQA working principle

1 Clean up the recording

When the analog sound is converted to a digital signal, time blurring will occur, blurring transient signals over time. As a result, our ears cannot tell where a single sound comes from, the comparison between recorded music and "live performances" is unremarkable. MQA can eliminate this distortion and create a true 3D sound field, which is different from any sound you have ever heard.

Before using MQA

Common digital audio filters will damage the time resolution, there will be a "hum" before and after the transient.

After using MQA

Compared with 24/192 recording, MQA reduces the number of vibrations before and after by more than 10 times.

Support MQA CD

CD Player + MQA-Enabled DAC

Your CD player's digital output (optical or coaxial) can be fed to an MQA decoder. The MQA decoder can restore the original high-resolution signal heard in the studio and confirm it, using the authentication signature. S.M.S.L D400 Pro support MQA CD.

Figure 5.6: Explanation of MQA full decoding and MQA-CD support, including a comparison of audio waveforms.

6. Setup Guide

6.1 POWER CONNECTION

1. Connect the supplied power cable to the AC IN port (13) on the rear panel.
2. Plug the other end of the power cable into a suitable AC power outlet (100-240V).

6.2 BLUETOOTH ANTENNA INSTALLATION

1. Screw the provided Bluetooth antenna onto the Bluetooth Antenna connector (6) on the rear panel.
2. Ensure the antenna is securely fastened for optimal Bluetooth signal reception.

6.3 AUDIO INPUT CONNECTIONS

Connect your audio source to one of the following input ports:

- **USB Input (11):** Connect to a computer using a USB-B cable. Install necessary drivers if prompted by your operating system.
- **Optical Input (10):** Connect to a digital audio source (e.g., CD player, TV) using an optical fiber cable.
- **Coaxial Input (9):** Connect to a digital audio source using a coaxial cable.
- **I2S Input (12):** Connect to compatible I2S audio sources for high-performance digital audio transmission.
- **AES/EBU Input (8):** Connect to professional digital audio sources using an AES/EBU cable.
- **Bluetooth:** Refer to Section 7.4 for Bluetooth pairing instructions.

6.4 AUDIO OUTPUT CONNECTIONS

Connect the D400 PRO to your amplifier or active speakers:

- **XLR Output (5):** For balanced audio connection, use XLR cables to connect to an amplifier with XLR inputs.

- **RCA Output (7):** For unbalanced audio connection, use RCA cables to connect to an amplifier with RCA inputs.

7. Operation

7.1 POWER ON/OFF

After connecting the power cable, the unit will enter standby mode. Press the power button on the remote control or the multi-function knob (1) to power on the device. Press again to return to standby.

7.2 INPUT SELECTION

Rotate the multi-function knob (1) to cycle through available input sources (USB, Optical, Coaxial, I2S, AES, Bluetooth). The selected input will be displayed on the screen (4).

7.3 VOLUME CONTROL

Rotate the multi-function knob (1) to adjust the output volume. The volume level is displayed on the screen. Alternatively, use the volume up/down buttons on the remote control.

7.4 BLUETOOTH PAIRING

1. Select "Bluetooth" as the input source using the multi-function knob or remote.
2. On your mobile device or computer, search for Bluetooth devices.
3. Select "S.M.S.L D400 PRO" from the list of available devices to pair.
4. Once paired, audio from your device will be streamed to the D400 PRO.

7.5 MENU NAVIGATION

Press the multi-function knob (1) to enter the main menu. Rotate the knob to navigate through menu options (e.g., Digital Filters, Output Mode, Display Brightness). Press the knob again to select an option or confirm a setting. Use the remote control's menu buttons for similar functionality.

8. Maintenance

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the unit. Do not use liquid cleaners or abrasive materials.
- **Storage:** If storing the unit for an extended period, disconnect it from power and store it in a cool, dry place.
- **Firmware Updates:** Periodically check the S.M.S.L official website for firmware updates to ensure optimal performance and access to new features. Follow the instructions provided with the firmware update carefully.

9. Troubleshooting

Problem	Possible Cause	Solution
No power	Power cable not connected; Power outlet faulty; Unit in standby.	Check power cable connection; Try a different outlet; Press power button on unit or remote.

Problem	Possible Cause	Solution
No sound output	Incorrect input selected; Volume too low; Output cables loose; Amplifier off/incorrect input.	Verify input selection; Increase volume; Check all audio cable connections; Ensure amplifier is on and set to correct input.
Bluetooth not connecting	Bluetooth input not selected; Device not in pairing mode; Antenna not connected.	Select Bluetooth input; Ensure D400 PRO is discoverable; Re-attach Bluetooth antenna.
Distorted sound	Source audio quality; Incorrect sample rate settings; Cable interference.	Check source audio; Verify sample rate settings on source and DAC; Use shielded cables.

10. Specifications

Feature	Detail
Model Number	D400PRO-S
DAC Chips	AK4191EQ + AK4499EX
USB Processor	XMOS XU-316
PCM Support	Up to 32bit/768kHz
DSD Support	Up to DSD512
MQA Support	MQA Full Decoding, MQA-CD
Bluetooth Codecs	LDAC (24bit/96kHz), aptX/HD, SBC, AAC
Inputs	USB, Optical, Coaxial, I2S, Bluetooth, AES
Outputs	XLR (Balanced), RCA (Unbalanced)
Dimensions	254mm x 189mm x 46mm (approx. 10 x 7.4 x 1.8 inches)
Weight	Approx. 6.13 Pounds (2.78 kg)
Power Supply	AC 100-240V

11. Warranty and Support

The S.M.S.L D400 PRO comes with a **12-month warranty** from the date of purchase. This warranty covers manufacturing defects and malfunctions under normal use. Please retain your proof of purchase for warranty claims. For technical support, troubleshooting assistance, or warranty service, please contact your authorized S.M.S.L dealer or visit the official S.M.S.L website for contact information.

Important: Any unauthorized disassembly or modification of the unit will void the warranty.

