apollo | twin

Apollo Twin USB Hardware Manual

Manual Version 160422

UNIVERSAL AUDIO

www.uaudio.com

A Letter from Bill Putnam Jr.

Thank you for deciding to make the Apollo Twin High-Resolution Interface part of your music making experience. We know that any new piece of gear requires an investment of time and money — and our goal is to make your investment pay off. The fact that we get to play a part in your creative process is what makes our efforts meaningful, and we thank you for this.
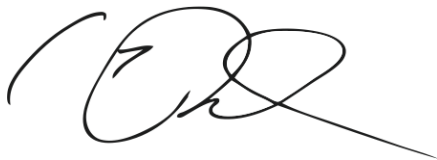
In many ways, the Apollo family of audio interface products represent the best examples of what Universal Audio has stood for over its long history; from UA's original founding in the 1950s by my father, through our current vision of delivering the best of both analog and digital audio technologies.

Starting with its high-quality analog I/O, Apollo Twin's superior sonic performance serves as its foundation. This is just the beginning however, as Apollo Twin is the only desktop audio interface that allows you to run UAD plug-ins in real time. Want to monitor yourself through a Neve® console channel strip while tracking bass through a classic Fairchild or LA-2A compressor? Or how about tracking vocals through a Studer® tape machine with some added Lexicon® reverb?* With our growing library of more than 90 UAD plug-ins, the choices are limitless.

At UA, we are dedicated to the idea that this powerful technology should ultimately serve the creative process — not be a barrier. These are the very ideals my father embodied as he invented audio equipment to solve problems in the studio. So as you begin to incorporate Apollo Twin into your creative process, we hope that the excitement and pride that we've built into it comes through. We believe Apollo Twin will earn its way into your creative workflow by providing stunning fidelity, great ease-of-use, and rock-solid reliability for years to come.

As always, please feel free to reach out to us via our website www.uaudio.com, and via our social media channels. We look forward to hearing from you, and thank you once again for choosing Universal Audio.

Sincerely,

Bill Putnam Jr.

All trademarks are recognized as property of their respective owners. Individual UAD Powered Plug-Ins sold separately.

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Introduction

Welcome to Apollo Twin USB!

High-Resolution Desktop Music Production with Classic Analog Sound

With the highest dynamic range and lowest noise of any desktop interface, Apollo Twin USB gives you stellar 24-bit/192 kHz sound and breathtaking clarity.

Its premium mic preamps and class-leading conversion translate into rich three-dimensional recordings with exceptional depth and punch. Digitally controlled analog monitor outputs provide full resolution audio at all listening levels — letting you create better mixes in real-world environments.

A Complete Analog Studio with Realtime UAD Plug-In Processing

Imagine having access to a classic analog recording studio, right on your desktop. Apollo Twin USB lets you record and mix through the full range of UAD Powered Plug-Ins — including vintage EQs, compressors, reverbs, tape machines and more — at near-zero latency, regardless of your audio software buffer size.

The key to its analog magic is onboard UAD-2 DUO DSP Processing, which powers the UAD plug-ins while reducing the strain on your host CPU. Apollo Twin USB includes the "Realtime Analog Classics" plug-in bundle.

Track Through Classic Preamps Using Unison™ Technology

Unison technology allows Apollo'sTwin USB's mic preamps and front-panel DI to sound and behave like the world's most sought-after tube and solid state preamps, guitar amps, and stompboxes — including their all-important impedance, gain stage "sweet spots," and circuit behaviors. Based on breakthrough integration between Apollo's analog inputs and its onboard UAD processing, Unison lets you track through a range of colorful emulations from Neve, API, and Marshall with amazing tone.
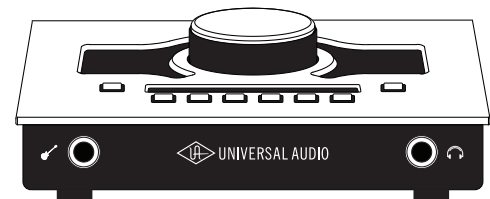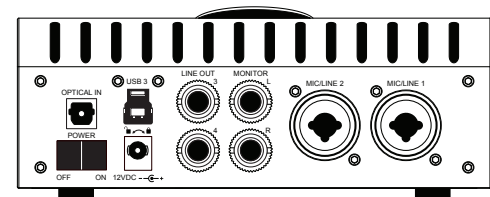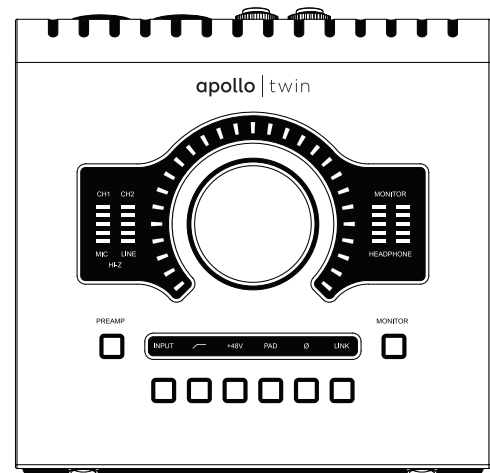
Professional I/O Connections

Apollo Twin USB is a 2-in/6-out interface with two class-leading mic/line preamps, two analog line outputs, two digitally controlled analog monitor outputs, and up to eight additional channels of digital inputs via Optical connection. Its conveniently located Hi-Z instrument input and headphone jack allow you to capture inspiration the moment it strikes.

A Sleek New App

Console 2.0 is Apollo Twin USB's software control interface. Its intuitive, analog console-style design provides realtime tracking and monitoring with UAD Powered Plug-Ins, Channel Strip presets, Drag & Drop functionality, dynamically resizable windows, and more.

Easy to Use with Any DAW

Apollo Twin USB is compatible with major DAWs, including Pro Tools, Cubase, Ableton Live, and more — allowing seamless integration no matter what recording software you use.

Apollo Twin USB Features

Key Features

- World-class 24-bit/192 kHz audio conversion
- Realtime UAD Processing - track through vintage Compressors, EQs, Tape Machines, and Guitar Amp plug-ins with near-zero latency
- USB 3 connectivity for Windows-based systems
- Unison™ technology for stunning models of classic mic preamps and stompboxes
- Includes UAD-2 DUO DSP Processing onboard
- 2 premium mic/line preamps; 2 line outs; front-panel Hi-Z instrument input and headphone output
- Digitally controlled analog monitor outputs for full resolution at all listening levels
- Uncompromising analog design, superior components, and premium build quality throughout
- Includes "Realtime Analog Classics" UAD plug-in bundle
- Runs UAD Powered Plug-Ins via VST, RTAS & AAX64 in all major DAWs

All Features

Audio Interface

- Sample rates up to 192 kHz* at 24-bit word length
- Up to 10 x 6 simultaneous input/output channels
  - Two channels of analog-to-digital conversion via:
    - Two balanced mic/line inputs
    - One Hi-Z instrument input
  - Six channels of digital-to-analog conversion via:
    - Digitally-controlled stereo monitor outputs
    - Stereo headphone outputs
    - Line outputs 3-4
  - Up to eight channels of digital input via:
    - Eight channels ADAT optical with S/MUX for high sample rates, or
    - Two channels S/PDIF optical with sample rate conversion

Microphone Preamplifiers

- Two high-resolution, ultra-transparent, digitally-controlled analog mic preamps
- Front panel and software control of all preamp parameters
- Low cut filter, 48V phantom power, 20 dB pad, polarity inversion, and stereo linking

96 kHz maximum on S/PDIF digital inputs

Monitoring

- Digitally-controlled analog monitor outputs maintains highest fidelity
- Independently-addressable stereo headphone outputs
- Independently-addressable line outputs 3-4 can be used for additional cue mix
- Front panel control of monitor levels and muting

UAD-2 Inside

- Two (DUO) SHARC DSP processors
- Realtime UAD Processing on all analog and digital inputs
- Same features and functionality as other UAD-2 devices when used with DAW
- Includes UAD Powered Plug-Ins "Realtime Analog Classics" bundle
- Complete UAD Powered Plug-Ins library is available online

Software

Console application:

- Enables tracking and/or monitoring with Realtime UAD Processing
- Remote control of Apollo Twin USB features and functionality
- Virtual I/O for routing DAW tracks through Console
- Two independent stereo Auxiliary busses

Console Recall plug-in:

- Saves Apollo Twin USB configurations inside DAW sessions for easy recall
- Facilitates control of Apollo Twin USB monitoring features from within the DAW
- VST, RTAS, and AAX 64 plug-in formats

UAD Meter & Control Panel application:

- Configures global UAD settings and monitors system usage

Other

- Attractive and durable desktop form factor
- Locking power supply prevents accidental disconnection
- Easy firmware updates
- One year warranty includes parts and labor

Package Contents

- Apollo Twin USB unit
- Power supply with (4) AC connectors
  (Changeable AC connectors for USA, Europe, UK, Australia, and China)
- USB 3 SuperSpeed cable
- Getting Started URL card

Operational Overview

Audio Interface

First and foremost, Apollo Twin USB is a premium 2x6 USB 3 audio interface with world-class 24-bit/192 kHz audio conversion. Apollo Twin USB connects to the outputs and inputs of other audio gear, and performs analog-to-digital (A/D) and digital-to-analog (D/A) audio conversions on the gear's signals. The digital audio signals are routed into and out of the host computer via the high-speed USB 3 protocol, which is carried on a single USB 3 SuperSpeed cable.

Apollo Twin USB leverages Universal Audio's expertise in DSP acceleration, UAD Powered Plug-Ins, and analog hardware design by integrating the latest cutting edge technologies in high-performance A/D-D/A conversion, DSP signal reconstruction, and host connectivity. Apollo Twin USB acts as both an audio interface with integrated DSP effects for tracking and monitoring as well as a fully integrated UAD-2 DSP accelerator for mixing and mastering.

About Realtime UAD Processing

Apollo Twin USB has the ability to run UAD Powered Plug-Ins in realtime. Apollo Twin USB's groundbreaking DSP + FPGA technology enable UAD plug-ins to run with latencies in the sub-2ms range, and multiple UAD plug-ins can be stacked in series without additional latency.

Realtime UAD Processing facilitates the ultimate sonic experience while monitoring and/or tracking.

> **Note:** *Apollo Twin USB, like other UAD-2 devices, can only load UAD Powered Plug-Ins, which are specifically designed to run on UAD-2 DSP accelerators. Native (host-based) plug-ins cannot run on the UAD-2 DSP.*

Console Software

The Console software application runs on the host computer and is used to control Apollo Twin USB mixing and monitoring with Realtime UAD Processing, access the audio interface I/O settings, and more. Console's analog-style workflow is designed to provide quick access to the most commonly needed features in a familiar, easy-to-use mixer interface.

Realtime UAD Processing is a special function that is available only within Console. All of Apollo Twin USB's analog and digital inputs can perform Realtime UAD processing simultaneously, and Console inputs with (or without) Realtime UAD Processing can be routed into the DAW for recording.

Console controls Apollo Twin USB's digital mixer so you can monitor Apollo Twin USB's inputs (with or without Realtime UAD Processing) without using any other audio software such as a DAW.

Console is integral to unleashing the power of Apollo Twin USB. For complete details about how to use Console and Realtime UAD Processing, refer to the Apollo Software Manual.

UAD Powered Plug-Ins in a DAW

Apollo Twin USB and UAD plug-ins can also be used within a DAW without the use of Console. UAD plug-ins loaded within the DAW operate like other (non-UAD) plug-ins, except the processing occurs on the Apollo Twin USB DSP instead of the host computer's processor. In this scenario, UAD plug-ins are subject to the latencies incurred by I/O hardware buffering.

For details about using UAD Powered Plug-Ins in a DAW, see the UAD System Manual.

Standalone Use

Although the Console application is required to utilize all Apollo Twin USB features, the hardware unit can be used as a digital mixer with limited functionality without a USB 3 connection to a host computer.

All currently active I/O assignments, signal routings, and monitor settings are saved to internal firmware when Apollo Twin USB is powered down and persist when power is re-applied. Therefore the last-used settings are always available even when a host computer is not connected.

Note that UAD plug-in instantiations are not retained on power down, because the plug-in files reside on the host computer. However, if UAD plug-ins are active when Apollo Twin USB's connection to the host system is lost (if the USB 3 cable is unplugged), the current UAD plug-in configurations remain active for processing until Apollo Twin USB is powered down.

About Apollo Twin USB Documentation

Documentation for Apollo Twin and UAD Powered Plug-Ins are separated by areas of functionality, as described below. The user manuals are placed on the system drive during software installation, and they can be downloaded at www.uaudio.com.

Apollo Manual Files

> *Note: All manual files are in PDF format. PDF files require a free PDF reader application such as Adobe Acrobat Reader.*

Apollo Hardware Manuals

Each Apollo model has a unique hardware manual. The Apollo hardware manuals contain complete hardware-related details about one specific Apollo model. Included are detailed descriptions of all hardware features, controls, connectors, and specifications.

> *Note: Each hardware manual contains the unique Apollo model in the file name.*

Apollo Software Manual

The Apollo Software Manual is the companion guide to the Apollo hardware manuals. It contains detailed information about how to configure and control all software features for Apollo Twin USB using the Console application, Console Settings window, and Console Recall plug-in. Refer to the Apollo Software Manual to learn how to operate the software tools and integrate Apollo Twin USB's functionality into the DAW environment.

> *Note: Each Apollo connection protocol (Thunderbolt, FireWire, USB) has a unique software manual.*

UAD System Manual

The UAD System Manual is the complete operation manual for Apollo's UAD-2 functionality and applies to the entire UAD-2 product family. It contains detailed information about installing and configuring UAD devices, the UAD Meter & Control Panel application, buying optional plug-ins at the UA online store, and more. It includes everything about UAD except Apollo-specific information and individual UAD plug-in descriptions.

UAD Plug-Ins Manual

The features and functionality of all individual UAD Powered Plug-Ins is detailed in the UAD Plug-Ins Manual. Refer to this document to learn about the operation, controls, and user interface of each UAD plug-in that is developed by Universal Audio.

Direct Developer Plug-Ins

UAD Powered Plug-Ins includes plug-in titles created by our Direct Developer partners. Documentation for these 3rd-party plug-ins are separate files written and provided by the plug-in developers. The file names for these plug-in manuals are the same as the plug-in titles.

Accessing Installed Documentation

Any of these methods can be used to access installed documentation:

- Click the "View Documentation" button in the Help panel within the UAD Meter & Control Panel application
- Choose "Documentation" from the Help menu within the Console application
- Windows Start Menu: Start>All Programs>UAD Powered Plug-Ins>Documentation
- Manuals are also available online at help.uaudio.com

Additional Resources

For additional resources, or if you need to contact Universal Audio for assistance, see the Technical Support page.

Quick Start

Quick Start Overview

Apollo Twin USB hardware and software installation and setup consists of the main steps below, which are detailed in this chapter:

1. Hardware Setup: Connect and power the Apollo Twin USB hardware
2. Software Setup: Download and install the Apollo Twin USB software
3. Connect to Input Sources and Monitor System
4. Setting Hardware I/O Levels: Learn how to adjust input and output levels

Hardware Setup

Select a Suitable Location

- Locate Apollo Twin USB on a flat surface so its feet will maintain airflow beneath the unit.
- The location should be sturdy enough to securely hold its weight and withstand the pressure of operating the top panel controls.
- Leave enough room behind the unit for connected cabling.
- Do not block the cooling vents on the bottom or sides of the unit.

USB 3 Cable Length

Apollo Twin USB is designed for use with a USB 3 SuperSpeed cable length of two meters or less (approximately six feet or less). Using longer USB 3 cables can have adverse effects on system performance.

Important: Connect Apollo Twin USB to the computer with a USB 3 SuperSpeed cable that is no longer than two meters in length.

Connect to Computer and Power

Caution: Before powering Apollo Twin USB on or off, lower the volume of the monitor speakers (if connected) and remove headphones from your ears.

1. Connect the included USB 3 SuperSpeed cable between Apollo Twin USB and a USB 3 port on the host computer. Ensure the cable is fully inserted at both ends.
2. Connect the included power supply to an AC outlet (Apollo Twin USB cannot be bus powered).
3. Connect the power supply cable's locking barrel plug to Apollo Twin USB's rear panel power input jack:
   a) Align the tabs on the power cable's barrel connector to the notches on the jack
   b) Rotate the barrel connector clockwise to prevent accidental disconnection.

Important: After ensuring the locking barrel tabs are aligned with the chassis slots and the barrel is fully inserted, rotate the barrel clockwise to secure the connector.
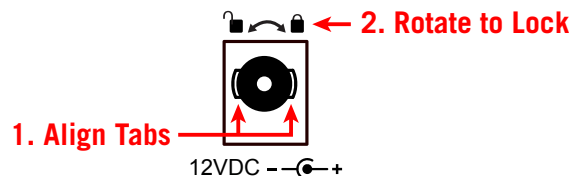
4. Apply power to Apollo Twin USB using the rear panel's power switch.
5. Proceed with software installation and setup (see next page).

Software Setup

Note: Items on this page are detailed in the Apollo Software Manual. See About Apollo Twin USB Documentation for related information.

System Requirements

All system requirements must be met for Apollo Twin USB to operate properly. Before proceeding with installation, see the system requirements in the Apollo Software Manual.

Software Installation

The software must be installed to use the hardware and UAD plug-ins. The UAD Powered Plug-Ins software installer contains the Apollo Twin USB software and drivers.

Important: For optimum results, connect and power on Apollo Twin USB before installing the software.

To obtain the latest UAD Powered Plug-Ins software installer, visit:

- www.uaudio.com/downloads

Registration and Authorization

Apollo Twin USB must be registered and authorized to unlock UAD plug-ins that are bundled with the product. Registration and authorization via a web browser is triggered automatically by the UAD software the first time the device is recognized.

System Configuration

Complete details about setting up the Apollo Twin USB system, including how to integrate with a DAW and related information, are included in the Apollo Software Manual.

Console Application

The included Console application is the software interface for the Apollo Twin USB hardware. Console controls Apollo Twin USB and its digital mixing, monitoring, and Realtime UAD Processing features. Console is also used to configure Apollo Twin USB's I/O settings such as sample rate, clock source, reference levels, and DAW I/O buffer size.

For complete details about how to operate Console, refer to the Apollo Software Manual.
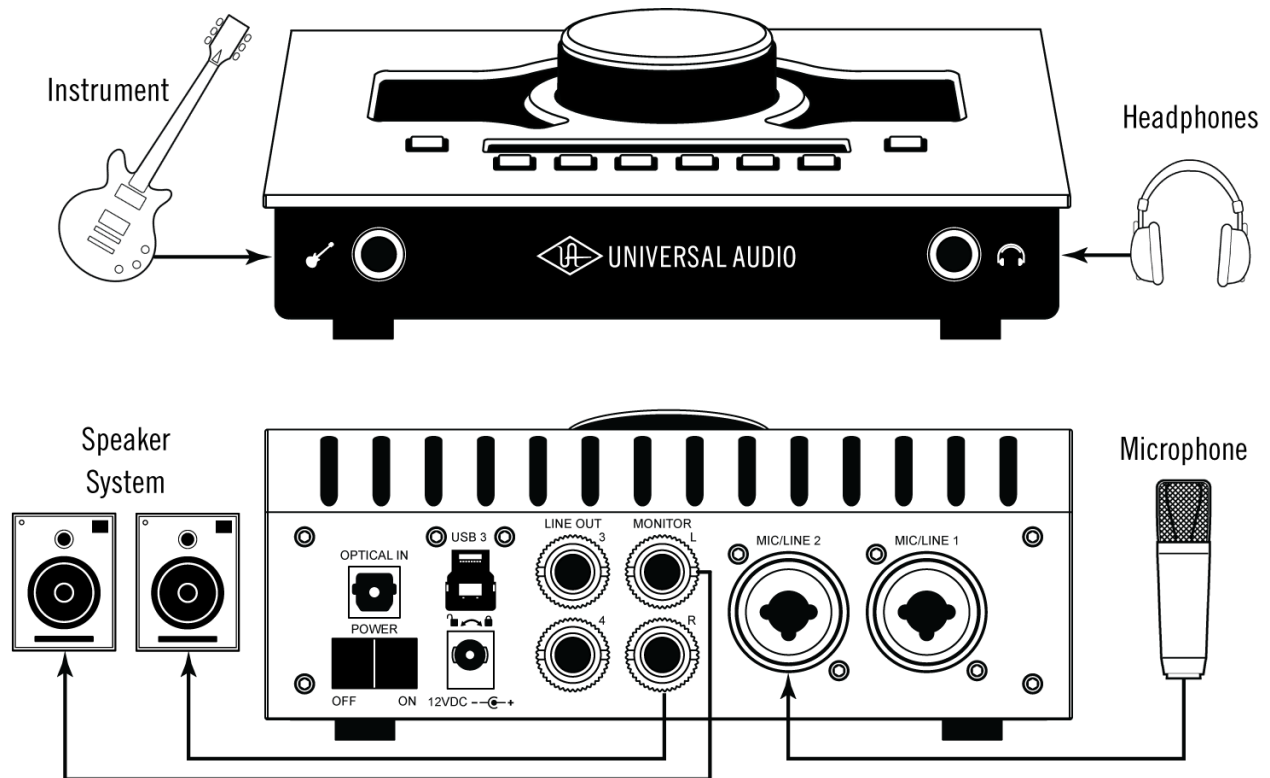
UA Support Videos

Informational videos are available online to help you get started with Apollo Twin USB:

- help.uaudio.com

Connect to Input Sources and Monitor System

One typical Apollo Twin USB setup is illustrated below. For complete details about all of Apollo Twin USB's connectors and controls, see Controls & Connectors.

Typical Apollo Twin USB setup connections

Setting Hardware I/O Levels

This section explains how to set input gain levels for the hardware inputs (mic, line, and Hi-Z) and adjust volume levels for the hardware outputs (monitors and headphones). Refer to the top panel illustration for control names and numbers mentioned below.

Important: Before proceeding, lower the volume of the monitor speakers and remove headphones from your ears.

Set Input Gains

1. Select the input channel to be adjusted by pressing the Preamp button (9) until the Channel Selection Indicator (3) displays the channel (CH1 or CH2).
2. Select the input type (mic or line) by pressing the Input Select button (11a) until the Input Type indicator (5) displays the desired input jack* (see note below).
3. When the input signal is present, adjust the channel's gain by increasing the Level knob (1) until the input meter for the channel (4) approaches maximum, but does not reach the red clip LED. If the level is too high to avoid clipping (when the red "C" LED illuminates), enable the pad (11).
4. To set the input gain for the other input channel, repeat steps 1 – 3.

Adjust Output Volumes

1. Select the output volume to be adjusted (monitor or headphone) by pressing the Monitor button (10) until the Monitor Selected (6) or Headphone Selected (8) indicator is lit.
2. Set the volume level by carefully increasing the Level knob until the desired volume is reached (you may need to adjust the volume of the speakers).
3. To set the other output volume (monitor or headphone), repeat steps 1 – 2.

Mute (and Unmute) Monitor Outputs

1. Select the Monitor outputs by pressing the Monitor button (10) until the Monitor Selected (6) indicator is lit.
2. Press the Level knob (1) to mute the monitor outputs. The Volume Level Indicator LEDs (2) are red when the monitors are muted and Monitor is selected (6).
3. To toggle the monitor mute state, press the Level knob (1) whenever Monitor (6) is selected.

Notes:

- *Hi-Z input is automatically selected, overriding the channel 1 Mic and Line inputs, when a ¼" mono TS (tip-sleeve) plug is connected to the Hi-Z Instrument jack (12) on the front panel.
- To control both channels simultaneously when a stereo source is connected, press the Link button (11) when an input is selected (9).
- Line outputs 3 & 4 are accessed and controlled via software only (Console or DAW).

What Next?

Refer to the Apollo Software Manual to learn how to configure the audio interface settings, use the Console application and Realtime UAD Processing, and more.

Controls & Connectors

Complete details about the Apollo Twin USB hardware controls and all connector jacks on the front and rear panels are provided in this chapter.

> **Note:** *To learn how to set input gain levels (mic, line, and Hi-Z) and output volumes (monitors and headphones), see* Setting Hardware I/O Levels *in the Quick Start chapter.*

Controls Overview

Some Apollo Twin USB controls have multiple functions. The function of each control depends on the current operating mode and the current settings within that mode. To control a particular setting, the control must be activated for the function.

Operating Modes

Apollo Twin USB's top panel has two operating modes: *Preamp* and *Monitor*. The function and availability of the top panel controls vary depending on the active operating mode. The active mode is selected with the PREAMP and MONITOR buttons. Press the button to activate the mode. Each mode is explained in greater detail below.

> **Note:** *All top panel functions can be operated concurrently (without switching modes) from within the companion Console software application. See the* Apollo Software Manual *for details.*

PREAMP Mode

When Apollo Twin USB is in Preamp mode, all top panel controls are related to **input** functions only. To adjust any input function, press the PREAMP button to enter Preamp mode and activate the input channel controls.
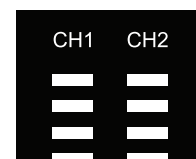
PREAMP

> **Note:** *Monitor and headphone functions cannot be performed in Preamp mode.*

Preamp Channels

Apollo Twin USB has two analog input channels and one set of input channel controls. The channel controls adjust all channel functions for the currently selected channel. After switching the selected channel, the other channel can be adjusted.
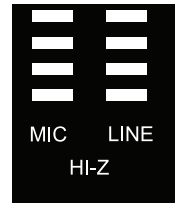
Channel Selection

The currently selected channel is shown by the CH1 and CH2 indicators at the upper left of the main display panel, above the input meters. The top panel controls only adjust the functions for the currently selected channel.

When in Preamp mode, press the PREAMP button or the LEVEL knob to change the selected channel. Press again to switch back to the other channel.

Input Type

Each input channel has one preamplifier. The input source used by the preamp can be the mic input or the line input. The input source is determined by the pressing the INPUT button when the channel is selected. The input type is shown by the indicators below the input meters.

On channel 1 only, the Hi-Z instrument can be used as the input type. The Hi-Z input is selected automatically when an instrument cable is plugged into the front panel Hi-Z input.

Preamp Options

The two input channels each have a set of various preamp options that can be activated for the input with the row of six buttons at the bottom of the top panel.

The current state of the preamp options are indicated in the display panel above the preamp option buttons. Available options are dim when inactive and bright when enabled.

Not all preamp options are available with all input types. For specific details, see the Top Panel Controls section later in this chapter.

MONITOR Mode

When Apollo Twin USB is in Monitor mode, all top panel controls are related to **output** functions only. To adjust any output function, press the MONITOR button to enter Monitor mode and activate the monitor controls.

> **Note:** *Input functions cannot be performed in Monitor mode.*

> **Important:** *Apollo Twin USB must be in Monitor mode to change the volume of the monitor or headphone outputs.*

Output Types

Apollo Twin USB has two main* stereo output types: Monitor and Headphone. The Level knob is used to set the volume level independently for both output types. The Level knob adjusts the volume for the currently selected output. After switching the selected output, the other output volume can be adjusted.

> **Note:** **Line outputs 3 and 4 are controlled with software only.*

Monitor Selection

The currently selected output type is shown by the MONITOR and HEADPHONE indicators at the right of the main display, above and below the output meters. The Level knob adjusts volume for the currently selected output.

When in Monitor mode, press the MONITOR button to change the selected output. Press again to switch to the other output.
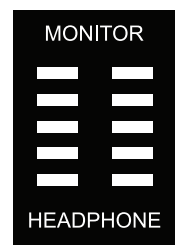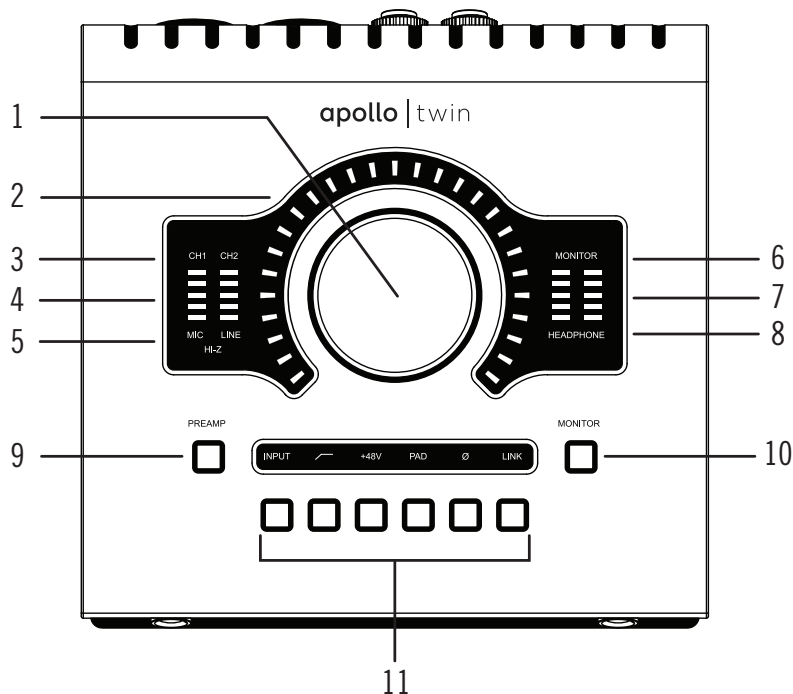
Monitor Mute

When MONITOR is selected, press the Level knob to mute (silence) the stereo monitor outputs. The green Level indicators (the ring of LEDs around the knob) are RED when the monitor outputs are muted. Press again to unmute the monitor outputs.

Top Panel

Refer to the illustration below for control descriptions in this section.

Apollo Twin USB's top panel elements

(1) Level Knob & Switch

The Level knob & switch controls multiple functions. The knob's current function is selected with the Preamp (9) and Monitor (10) buttons.

Rotate clockwise to increase level of the selected function. When Monitor is selected (6), press to mute/unmute the monitor outputs. When Preamp is selected (3), press to alternate between channels 1 & 2.

> ***Unison Integration:*** *The Level knob can also be used to control Unison-enabled UAD preamp plug-ins. See the* Apollo Software Manual *for complete Unison details.*

(2) Preamp Gain & Volume Level Indicator LEDs

The LEDs around the Level knob indicate the relative level of the selected function (input preamp gain or monitor/headphone volume).

> ***Note:*** *The indicator LEDs are red when Monitor (10) is selected and the monitor outputs are muted.*

(3) Channel Selection Indicators

The currently selected input channel is indicated by the lit channel name above its input meter (CH1 or CH2). Press the Preamp button (9) to switch between channels 1 & 2.

Tip: You can also switch between channels 1 & 2 by pressing the Level knob (1), but only when in Preamp Mode (when the input controls are active).

(4) Input Meters

These meters display the incoming signal level for input channels 1 & 2. Reduce the channel's preamp gain (see Setting Levels) if its red clip LED illuminates.

(5) Input Type Indicators

These indicators show which input type (mic, line, or Hi-Z) is active for the selected channel. Use the Input Select button (11a) to change the input type.

Note: Hi-Z input is available for channel 1 only.

(6) Monitor Selected Indicator

When lit, the Level knob (1) controls volume and muting of the monitor outputs (15). Press the Monitor button (10) to activate the monitor controls.

(7) Stereo Output Meters

These meters display the main stereo signal output levels.* Main output levels are independent of monitor and headphone volume levels. Reduce levels feeding the output(s) if a red "C" (clip) LED at the top of the Output Meters illuminates.

*Exception: If HEADPHONES is currently selected on Apollo Twin USB and the Headphone Source in Console is set to HP, these output meters indicate the level being sent to the headphone bus via Console's headphone sends and/or the DAW.

(8) Headphone Selected Indicator

When lit, the Level knob (1) controls the volume of the headphones output (13). Press the Monitor button (9) to activate the headphones controls (you may need to push it twice).

(9) Preamp Button

Press PREAMP to activate the input channel controls. Press again to alternate between channels 1 & 2.

Tip: You can also switch between channels 1 & 2 by pressing the Level knob (1), but only when in Preamp Mode (when the input controls are active).

(10) Monitor Button

Press MONITOR to activate the control of volume levels with the Level knob (1). Press again to alternate between control of the monitor and headphone volumes.

Tip: Indicators (6) and (8) determine which volume (monitor or headphone) is being controlled with the Level knob (1).

(11) Preamp Option Buttons

These six buttons control the preamp options (labeled a – f below) when the input channel is selected (3). The preamp option is active when its indicator is lit. When Monitor (6) or Headphone (8) is selected, the preamp options cannot be modified and this portion of the display is unlit.

> **Unison Integration:** *The Preamp Options can also be used to control Unison-enabled UAD preamp plug-ins. See the Apollo Software Manual for complete Unison details.*

Refer to the illustration below for control descriptions in this section.
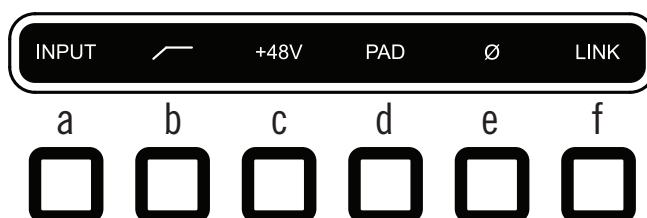
Apollo Twin USB's preamp option buttons

(a) Input Select

Selects the active input jack for the channel. Press to alternate between the mic & line inputs. The current selection is displayed by the input type indicators (5).

The Hi-Z input is selected automatically whenever a ¼" mono (tip-sleeve) plug is connected to the front panel's Hi-Z Instrument jack (12).

> **Note:** *Hi-Z input is available for channel 1 only.*

(b) Low Cut Filter

Enables a low cut (high pass) rumble filter with a cutoff frequency of 75 Hz.

(c) +48V

Enables 48-volt phantom power for the mic input. Phantom power is typically needed for condenser microphones. +48 is available for the microphone inputs only.

> **Caution:** *To avoid potential equipment damage, disable +48V phantom power on the channel before connecting or disconnecting its XLR input.*

(d) Pad

Attenuates (lowers) the input signal level by 20 dB. Pad is unavailable for the line inputs and the Hi-Z instrument input.

(e) Polarity Ø

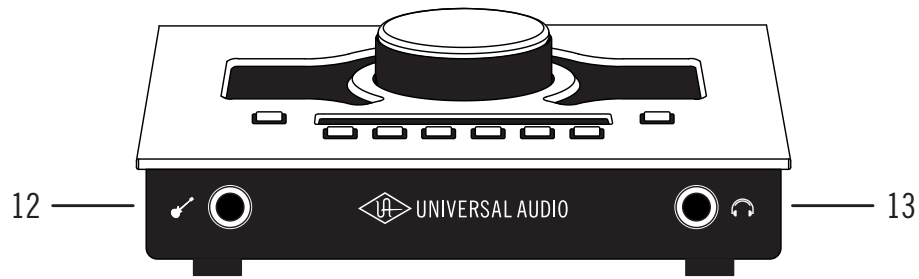Inverts the polarity (aka "phase") of the input signal.

(f) Link

Links inputs 1 & 2 so both channels are adjusted simultaneously as a stereo pair.

> **Note:** *Link cannot be activated when a plug is inserted in the Hi-Z jack (12).*

Front Panel

Refer to the illustration below for control descriptions in this section.

12 ——   —— 13

Apollo Twin USB's front panel elements

(12) Hi-Z Instrument Input

Connect any guitar, bass, or other high impedance instrument here. This jack automatically overrides the channel 1 mic and line inputs.

Levels for the Hi-Z input are set using the same method as the mic and line inputs.

> ***Note:*** *This jack accepts a ¼" mono (tip-sleeve) plug only.*

(13) Headphone Output

Connect ¼" stereo headphones here. Volume is set with the Level knob (1) when Headphone (8) is selected with the Monitor button (10).
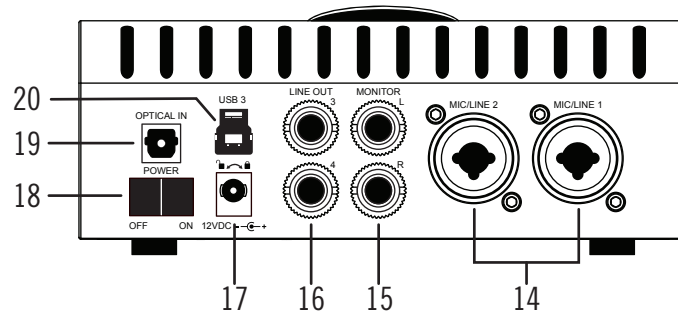
Side Panel

Kensington Security Slot (not shown)

The anti-theft security slot on the side panel connects to any standard Kensington lock.

Rear Panel

Refer to the illustration below for control descriptions in this section.

Note: All rear panel ¼" jacks can accept unbalanced TS (tip-sleeve) or balanced TRS (tip-ring-sleeve) connections.

Apollo Twin USB's rear panel elements

(14) Mic/Line Inputs 1 & 2

The jacks for channels 1 & 2 accept either a male XLR plug for connecting to the mic input, or a ¼" phone plug for connecting to the line input.

The input that is used for the channel (mic or line) is specified with the Input Type button (11a).

Caution: To avoid potential equipment damage, disable +48V phantom power on the channel before connecting or disconnecting its XLR input.

(15) Monitor Outputs

Connect the powered monitor speakers (or speaker amplifiers) here. Volume is set with the Level knob (1) when Monitor is selected (6) with the Monitor button (10).

(16) Line Outputs 3 & 4

These ¼" phone outputs are accessed via software (Console or DAW). Line outputs 3 & 4 are used to send audio to other equipment.

(17) Power Supply Input

The included power supply must be connected here (Apollo Twin USB cannot be bus powered). Rotate locking connector to prevent accidental disconnection.

Important: After ensuring the locking barrel tabs are aligned with the chassis slots and the barrel is fully inserted, rotate the barrel to secure the connector to the chassis.

(18) Power Switch

This rocker switch applies power to Apollo Twin USB. Switch to OFF when not in use.

Caution: *Before powering Apollo Twin USB, lower the volume of the monitor speakers and remove headphones from your ears.*

(19) Optical In

This is a TOSLINK input for connection to other gear with an optical ADAT or S/PDIF output.

Note: *The protocol to be used (ADAT or S/PDIF) is specified in the Interface panel of the Console Settings window.*

(20) USB 3 Port

Connect the included USB 3 SuperSpeed cable between this USB 3 Type-B port and the USB 3 Type-A port on the host computer.

Important: *Use only a USB 3 SuperSpeed cable to connect Apollo Twin USB to the host computer. USB 2 cables cannot be used.*

Specifications

Specification Tables

All audio specifications are typical performance unless otherwise noted, tested under the following conditions: 48 kHz internal sample rate, 24-bit sample depth, 20 kHz measurement bandwidth, with balanced inputs and outputs.

SYSTEM	
I/O Complement	
Microphone Inputs	Two
Analog Line Inputs	Two
Hi-Impedance (Hi-Z) Instrument Inputs	One
Analog Line Outputs	Two
Analog Monitor Outputs	Two (one stereo pair)
Headphone Outputs	One stereo
Digital Input Port (TOSLINK optical)	One (ADAT or S/PDIF, selectable)
USB 3 Port	One
A/D – D/A Conversion	
Supported Sample Rates (kHz)	44.1, 48, 88.2, 96, 176.4, 192
Bit Depth Per Sample	24
Simultaneous A/D conversion	Two channels
Simultaneous D/A conversion	Six channels
Analog Round-Trip Latency	1.1 milliseconds @ 96 kHz sample rate
Analog Round-Trip Latency with up to four serial UAD Powered Plug-Ins via Console application	1.1 milliseconds @ 96 kHz sample rate

(continued)

| ANALOG I/O	
Frequency Response	20 Hz – 20 kHz, ±0.1 dB
Line Inputs 1 & 2	
Connector Type	¼" Female TRS Balanced (Combo XLR/TRS)
Dynamic Range	117.5 dB (A–weighting)
Signal-to-Noise Ratio	117.5 dB (A–weighting)
Total Harmonic Distortion + Noise	−108 dBFS
Common-Mode Rejection Ratio (CMRR)	Greater than 60 dB (10' cable)
Input Impedance	10K Ohms
Gain Range	+10 dB to +65 dB
Reference Level	+4 dBu
Maximum Input Level	+20.2 dBu
Microphone Inputs 1 & 2	
Connector Type	XLR Female, pin 2 positive (Combo XLR/TRS)
Phantom Power	+48V (switchable per mic input)
Dynamic Range	118 dB (A–weighting)
Signal-to-Noise Ratio	118 dB (A–weighting)
Total Harmonic Distortion + Noise	−110 dBFS
Equivalent Input Noise	−127 dB
Common-Mode Rejection Ratio (CMRR)	Greater than 70 dB (10' cable)
Default Input Impedance	5.4K Ohms (variable via Unison plug-ins)
Gain Range	+10 dB to +65 dB
Pad Attenuation (switchable per input)	20 dB (variable via Unison plug-ins)
Maximum Input Level	26 dBu (minimum gain, pad engaged)
Hi-Z Input	
Connector Type	Female ¼" TS Unbalanced
Dynamic Range	117 dB (A–weighting)
Signal-to-Noise Ratio	117 dB (A–weighting)
Total Harmonic Distortion + Noise	−101 dBFS
Input Impedance	1M Ohms (variable via Unison plug-ins)
Gain Range	+10 dB to +65 dB
Maximum Input Level	+12 dBu

(continued)

ANALOG I/O	
Frequency Response	20 Hz – 20 kHz, ±0.1 dB
Line Outputs 3 & 4	
Connector Type	¼" Female TRS Balanced
Dynamic Range	118 dB (A–weighting)
Signal-to-Noise Ratio	118 dB (A–weighting)
Total Harmonic Distortion + Noise	–107 dBFS
Stereo Level Balance	±0.05 dB
Output Impedance	600 Ohms
Maximum Output Level	20.2 dBu
Monitor Outputs 1 & 2	
Connector Type	¼" Female TRS Balanced
Dynamic Range	115 dB (A–weighting)
Signal-to-Noise Ratio	115 dB (A–weighting)
Total Harmonic Distortion + Noise	–105 dBFS
Stereo Level Balance	±0.05 dB
Output Impedance	600 Ohms
Maximum Output Level	+20.2 dBu
Operating Reference Level	+14 dBu, +20 dBu (selectable)
Stereo Headphones Output	
Connector Type	¼" Female TRS Stereo
Dynamic Range	113 dB (A–weighting)
Signal-to-Noise Ratio	113 dB (A–weighting)
Total Harmonic Distortion + Noise	–101 dBFS
Maximum Output Power	80 milliwatts into 600 ohm load

(continued)

DIGITAL INPUT	
S/PDIF	
Connector Type	Optical TOSLINK JIS F05 (shared with ADAT)
Format	IEC958
Supported Sample Rates (kHz)	44.1, 48, 88.2, 96
S/PDIF Input Channels	Two (Stereo L/R)
ADAT	
Connector Type	Optical TOSLINK JIS F05 (shared with S/PDIF)
Format	ADAT Digital Lightpipe with S/MUX
Supported Sample Rates (kHz)	44.1, 48, 88.2, 96, 176.4, 192
ADAT Input Channels @ 44.1 kHz, 48 kHz	1 – 8
ADAT Input Channels @ 88.2 kHz, 96 kHz	1 – 4 (S/MUX)
ADAT Input Channels @ 176.4 kHz, 192 kHz	1 – 2 (S/MUX)
Clock Synchronization Sources	
Internal, S/PDIF, ADAT (digital clock sync source conditional per selected digital input type)	

ELECTRICAL	
Power Supply	External AC to DC
AC Connector Type	Changeable blades (UL, VDE, UK, SSA, CCC)
AC Requirements	100V – 240V AC, 50 – 60 Hz
DC Connector Type	Male plug, 2.1 mm x 5.5 mm, center positive
DC Requirements	12 VDC, ±5%
Maximum Power Consumption	12 Watts

ENVIRONMENTAL	
Operating Temperature Range	32º to 95º Fahrenheit (0º to 35º Celsius)
Storage Temperature Range	-40º to 176º Fahrenheit (-40° to 80° Celsius)
Operating Humidity Range	20% to 80%

MECHANICAL	
Dimensions	
Width	6.31"
Height	2.60"
Depth, Chassis Only	5.86"
Depth, Including Knob & Jack Protrusions	6.20"
Shipping Box (Length x Width x Height)	8" x 8" x 5.5" (20.32cm x 20.32cm x 13.97cm)
Weight	
Shipping Weight (with box & accessories)	3.85 pounds
Weight (bare unit)	2.35 pounds
Package Contents	
Apollo Twin USB DUO Unit	
External Power Supply with (4) changeable AC connectors supporting USA, Europe, UK, Australia, China	
USB 3 SuperSpeed Cable	
Getting Started URL Card	

Hardware Block Diagram
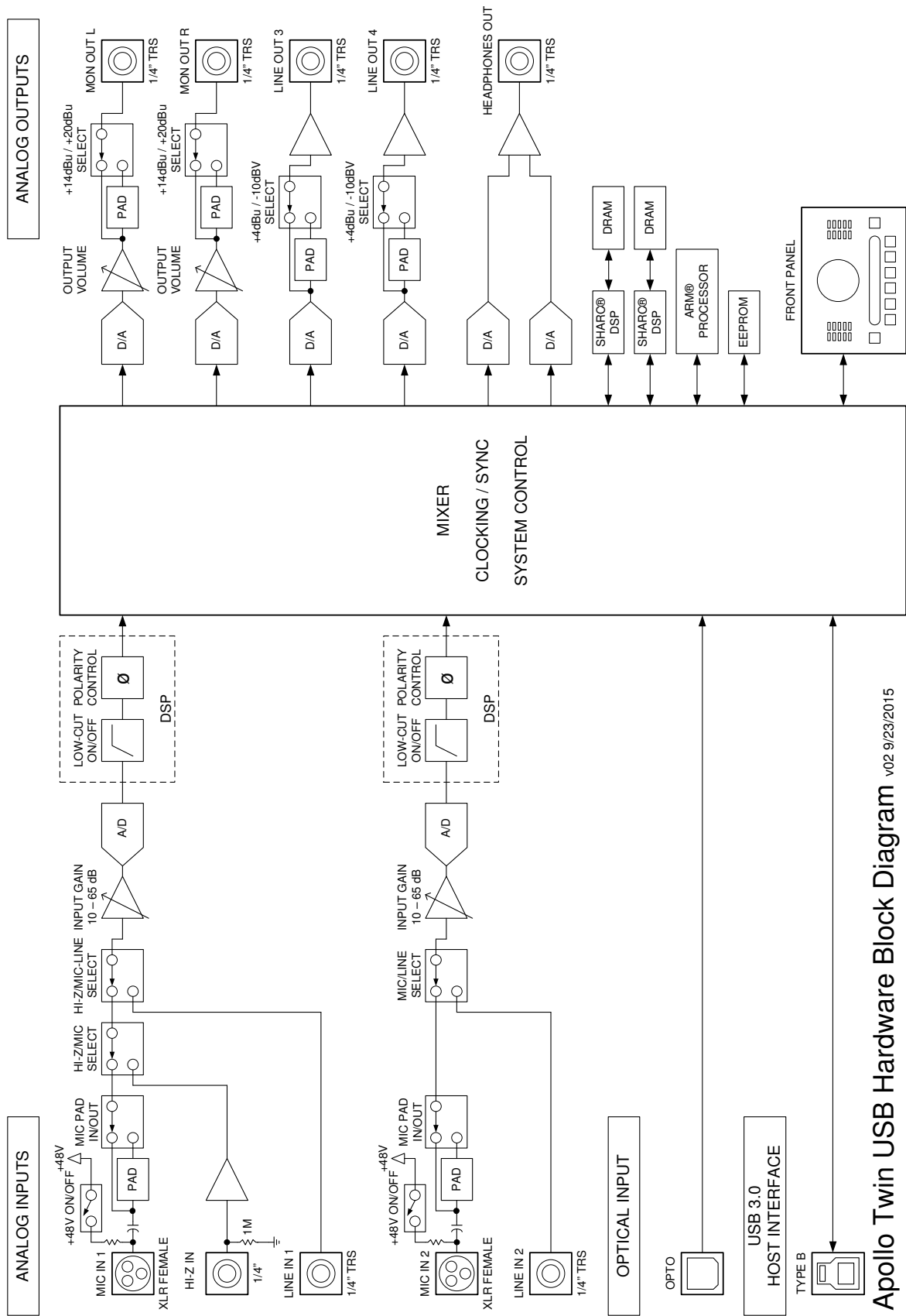
Apollo Twin USB Hardware Block Diagram v02 9/23/2015

Troubleshooting

If Apollo Twin USB isn't behaving as expected, some common troubleshooting items to confirm are below. If you are still experiencing issues after performing these checks, contact Technical Support.

SYMPTOM	ITEMS TO CHECK
Unit won't power on	• Confirm power supply connector is fully inserted, then twist barrel to lock • Confirm Power switch is in "ON" position • Confirm AC power is available at wall socket by plugging in a different device
Unit is not recognized by computer	• Confirm USB 3 SuperSpeed cable is fully inserted at both ends • Confirm latest Apollo Twin USB software is installed (reinstall if necessary) • Power down system, power on Apollo Twin USB, then start computer • Try a different USB 3 SuperSpeed cable (USB 2 cables cannot be used)
No monitor output	• Confirm connections, power, and volume of monitoring system • Confirm Apollo Twin USB monitor level is turned up • Confirm monitor outputs are not muted (push level knob when in monitor mode) • Confirm monitor LEDs are active (check signal flows)
Can't hear mic or line input(s)	• Confirm mic/line switch setting is correct for the channel • Confirm preamp gain is turned up for the channel(s) • On channel 1, confirm nothing is plugged into the Hi-Z input
Can't hear mic input(s)	• Confirm +48V phantom power is enabled if required by microphone
Can't hear Hi-Z input	• Confirm volume on connected device is turned up • Confirm Hi-Z input cable is 1/4" TS (TRS cables cannot be used with Hi-Z input)
Preamp controls have no effect on channel	• Confirm desired channel is selected for control (push level knob to select channel when in PREAMP mode)
Can't adjust digital input levels	• Signal levels for digital inputs are adjusted at the device connected to those inputs • UAD plug-ins can be used to add signal gain if desired
Audio glitches and/or dropouts during playback	• Increase I/O Hardware Buffer value in Console Settings>Hardware panel • If syncing to external digital clock via optical input, confirm clocking setups (confirm optical cable connections, matching sample rates, and that all devices are synchronized to one master clock device)
Undesirable echo/phasing	• Confirm input monitoring is not enabled in both Console and DAW
Static and/or white noise is heard when nothing is plugged in	• Mute or lower preamp gain to minimum on unused preamp channels (mic preamps can emit noise even when nothing is plugged in) • Some UAD plug-ins model the noise characteristics of the original equipment (Defeat the noise model in the UAD plug-in interface, or mute the channel containing the plug-in to temporarily mute the noise)
Various LEDs inside the unit are blinking	• This is normal operational behavior and can be safely ignored
Apollo Twin USB is behaving unexpectedly	• As a last resort, perform a hardware reset on the unit by following these steps: 1. Power off Apollo Twin USB 2. Press and hold the LEVEL KNOB, LOW CUT, and POLARITY controls 3. Power on Apollo Twin USB while continuing to hold all three controls 4. After all front panel LEDs flash rapidly for several seconds, release the controls

Notices

Important Safety Information

Before using this unit, be sure to carefully read the applicable items of these operating instructions and the safety suggestions. Afterwards, keep them handy for future reference. Take special care to follow the warnings indicated on the unit, as well as in the operating instructions.

Water and Moisture – Do not use the unit near any source of water or in excessively moist environments.

Object and Liquid Entry – Care should be taken so that objects do not fall, and liquids are not spilled, into the enclosure through openings.

Ventilation – When installing the unit, be sure there is adequate ventilation. Improper ventilation will cause overheating, and can damage the unit.

Heat – The unit should be situated away from heat sources, or other equipment that produces excessive heat.

Power Sources – The unit should be connected to a power supply only of the type described in the operating instructions, or as marked on the unit.

Power Cord Protection – AC power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords at plugs, convenience receptacles, and the point where they exit from the unit. Never take hold of the plug or cord if your hand is wet. Always grasp the plug body when connecting or disconnecting it.

Cleaning – Follow these general rules when cleaning the outside of the unit:
a. Turn the power off and unplug the unit
b. Gently wipe with a clean lint-free cloth
c. Do not use aerosol sprays, solvents, or abrasives

Nonuse Periods – The AC power supply cord of the unit should be unplugged from the AC outlet when left unused for a long period of time.

Damage Requiring Service – The unit should be serviced by a qualified service personnel when:
a. The AC power supply unit has been damaged; or
b. Objects have fallen or liquid has been spilled into the unit; or
c. The unit has been exposed to rain; or
d. The unit does not operate normally or exhibits a marked change in performance; or
e. The unit has been dropped, or the enclosure damaged.

Servicing – The user should not attempt to service the unit beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

Warranty

Universal Audio provides a warranty on all hardware products. To learn more, please visit www.uaudio.com/support/warranty.html or contact Technical Support. This limited warranty gives you specific legal rights. You may also have other rights which vary by state or country.

Maintenance

Apollo Twin USB does not contain a fuse or any other user-replaceable parts. The unit is internally calibrated at the factory. No internal user adjustments are available.

Repair Service

If you are having trouble with Apollo Twin USB, the first check all system setups, connections, software installations, and the Troubleshooting chart. If that doesn't help, contact Technical Support. To learn more about repair service, please visit:

- www.uaudio.com/support/rma-faq.html

FCC Compliance

Federal Communications Commission
United States Class B Manual Statement

NOTE: 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 and 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 into 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.

Any modifications to the unit, unless expressly approved by Universal Audio, could void the User's authority to operate the equipment.

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Technical Support

UA Website & Knowledge Base

The support area of the Universal Audio website is your complete technical resource for configuring, operating, and troubleshooting UA products.

You can watch helpful support videos, search the Knowledge Base for answers, find updated technical information that may not be available in other publications, and more.

- help.uaudio.com

YouTube Support Channel

The Universal Audio Support Channel at youtube.com includes helpful support videos for setting up and using UA products.

- Universal Audio YouTube Support Channel
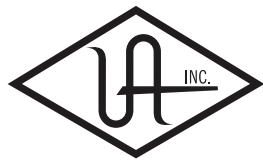
UAD Community Forums

The unofficial UAD discussion forums are a valuable resource for all Universal Audio product users. This website is independently owned and operated.

- www.uadforum.com

Contact UA Support

Universal Audio provides free technical support to registered product owners. Support specialists are available to answer technical inquiries via email and telephone.

- help.uaudio.com

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