Bricasti Design

M5 Network Player

User Guide

5/17 Preliminary

Conformity

EMC / EMI

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 residential installations.

Canadian Customers

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numerous de la classe B est conforme a la norme NMB-003 du Canada.

Certificate Of Conformity

Bricasti Design, 123 Fells Ave., Medford MA, USA, hereby declares on its own responsibility the following products:

M5

-that is covered by this certificate and marked with the CE-label conforms to the following standards:

EN 60065	Safety requirements for mains operated electronic and related apparatus for household and general use
EN 55103-1	Product family standard for audio, video, audiovisual and entertainment lighting control apparatus for professional use. Part 1: Emission
EN 55103-2	Product family standard for audio, video, audiovisual and entertainment lighting control apparatus for professional use. Part 2: Immunity

With reference to the regulations in the following directives:
73/23/EEC, 89/336/EEC

January 2017
Brian S Zolner
President

Introduction

This edition of the M5 user guide covers theory of design, setup and use. In the future you can always find the latest version available at our web site www.bricasti.com.

Congratulations on the purchase of your new M5 Network Player. We at Bricasti Design have set out to design the world's finest audio products made for the professional and consumer audio markets and the M5 joins with our other highly regarded products in our product line.

Network Audio

The M5 Network Player provides the user with the ability to take any DAC, like our M1 and get it connected to a high quality audio network via Ethernet or Wi-Fi and connect to your DAC without using USB. This uncompromising designed renderer is based on our M12 source controller which has this feature built in, and now available in the M5 as a complete stand-alone product. When combined with our M1 or any other DAC the M5 will take digital to a new level of uncompromising clarity.

Build Quality

The M5 is robustly constructed of milled and CNC machined aluminum sections. There is no typical bent metal chassis and top cover found on most products. All sections of the construction, the front and rear panels, the sides and even the bottom and top plates start out as solid blocks of aluminum which are precision machined to shape, with exact tolerances for a perfect fit. These parts are then anodized and the text and markings are laser etched for a clean and enduring look.

The Sound

The intention of the M5 is to provide state of the art playback and transfer of digital audio data from your network attached drive or anywhere on the network the audio is stored. In this scheme the audio is then "rendered" or streamed as real-time audio in the M5, then sent to the passive digital outputs, the AES or SPDIF. This approach removes the host server computer from the actual playing of the audio and eliminates typical issues found, such as noise generated from PC power supplies and switch mode voltage regulators in the computer, plus noise from power over USB when using a computer for this purpose.

The result is quiet backgrounds, clear transients, and the elimination of noise and power contamination as the M5 has a fully linear power supply. Even the USB playback from the M5 will be an improvement over a normal PC, as all the power running the USB is directly from our linear supply with no switch mode regulators to create high frequency noise. We hope you find the M5 to be pleasing and enjoyable to hear and use in the home, or as a precision tool for high level reference monitoring for the professional.

Unpacking and Inspection

After unpacking the M5 save all packing materials in the event you ever need to ship the unit. Thoroughly inspect the M5 and packing materials for any signs of damage in shipment. Report any damage to the carrier at once.

Precautions

The Bricasti Design M5 is a rugged device with extensive electrical protection. However, reasonable precautions applicable to any piece of audio equipment should be observed.

- Always use the correct AC line voltage as set by the manufacturer. Refer to the power requirements section of the manual and adhere to any power indications on the rear or bottom of the chassis. Using the incorrect AC line voltage can cause damage to your M5, so please check this carefully before applying power.

- Do not install the M5 in an unventilated rack or directly above any heat-producing equipment. Maximum ambient operating temperature is 40 C.

- To prevent fire or shock hazard, do not expose the M5 to rain or moisture.

Notices

In the interest of continued product development, Bricasti Design reserves the right to make improvements to this manual and the product it describes at any time and without notice.

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Important Safety Instructions:

Notice!

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow these instructions.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Do not block ventilation openings; install in accordance with manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers, pre amps) that produce heat.
- Do not defeat the safety purpose of the polarized or grounded 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 wide blade and prong are for your safety. If the provided plug does not fit in your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect power cord from being walked on or pinched.
- Use only attachments/accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Service is required when the apparatus has been damaged in any way, such as by being dropped, exposed to rain, liquid being spilled on it, or otherwise does not operate normally.

Service

- There are no user serviceable parts inside.
- All service must be performed by qualified personnel.

Warning!

- To reduce the risk of fire or electrical shock do not expose this equipment to dripping or splashing water and ensure that no objects such as vases are placed on the equipment.
- This apparatus must be earthed.
- **This equipment requires the correct AC line voltage as set by the manufacture and is not auto sensing or scaling.**
- Use a three-wire grounding-type line cord like the one supplied with this product.
- Be aware that different operating voltages require the use of different types of line cords and attachment plugs.
- Check the voltage in your area and use the correct type. See table below:

Voltage	Line plug standard
110-125V	UL817 and CSA C22.2 no 42
220-230V	CEE 7 page VII, SR section 107-2-D1/IEC 83 pg C4
240V	BS 1363 of 1984 Specification for 13A fused plugs and switched and unswitched outlet plugs

- This equipment should be installed near the socket outlet and disconnection of the device should be easily accessible.
- To completely disconnect from AC mains, disconnect the power supply cord from the AC receptacle.
- Do not install in a confined space.
- Do not open the unit -risk of electrical shock inside.

Caution

- You are cautioned that any change or modification not expressly approved in this manual could void your authority to operate this equipment.

M5 Operational Overview

Front Panel

The front panel has 1 button and an LED. The primary power on/off is found on the rear panel, and on the front there is a standby button and LED to indicate status of the M5. The M5 will power on in stand-by, this is an idle mode with low power consumption, full power is then applied when pressing the stand-by button.

Rear Panel

At the rear starting at the right in the picture you will find the XLR connector for the balanced AES output, RCA connector for SPDIF out and the USB which can be used as a digital audio out or Wi-Fi network input.
Next are the trigger in and out connectors which are used to set the M5 in and out of standby from a preamp or our M12 source controller. Above is the RJ45 Ethernet connector and to the far left is the AC inlet and main power on off switch.

Setup and Operation

Important Safety Note about AC power and the M5

The AC power is connected at the rear of the unit IEC type switched AC inlet with standby switch setting on the front panel. This is a filtered inlet and helps provide clean AC power to the M5's power supply and will prevent any RF and noise from entering M5 power grid. Take note that because the M5 utilizes a linear power supply and care should be taken to use only the power range indicated on the unit, otherwise damage may occur to the power supply and other circuits in the M5. Please note and adhere to any voltage indications on the outer box, rear panel or chassis all of which will indicate how the M5 is set at manufacturer.

Making Connections to the M5

Ethernet Network Connection

Before powering on the M5, connect the network to RJ45 with a suitable Cat5 cable assembly to your router, there are no practical distance limitations with Ethernet so the server can be located away from your listening room providing you with a quiet listening environment from computer and disk drive acoustical noise. Your server should also be connected to the same router as creating a network and not a point to point interface like USB. For best sound and reliability we recommended connecting the M5 with a wired connection to your router with a suitable Cat 5 cable.

Wi-Fi Network Connection

For convince the M5 can also use Wi-Fi for its network connection. This is done by using the USB connector at the rear panel. For the purest, this allows the M5 to be used without wifi and eliminate and concerns about Wi-Fi, and for one who prefers or needs the convenience, the Wi-Fi can be added.

To implement this connection the M5 is provided with a small USB Wi-Fi dongle. When this is placed in the USB connector and the M5 is powered on it will default and use the Wi-Fi for its network interface. As noted in with the wired Ethernet example above its best to have your server up and running before starting the M5 so the server app can find it. To enable the wireless connection you first have to have the M5 connected to your router with Ethernet, this can be done next to the router with a short cable. You then go to your server computer, open the network sharing device menu, click on the M5 device icon. This will open your web browser where you will then be able to configure the M5 with your Wi-Fi password and name as with other wireless devices. Once this is setup you can then move the M5 to your desired location and power up with the Wi-Fi dongle installed in the USB connector at the rear panel.

The performance of the Wi-Fi will depend on the signal strength with your router; you may have to use a USB extender cable to get the Wi-Fi USB dongle antenna away from other products and the M5 chassis as they may block the signal. For best sound and reliability we recommended connecting the M5 with a wired connection to your router with a suitable Cat 5 cable.

Digital Audio Connections

We recommend the use of high quality balanced AES 10ohm XLR cables when using the AES outputs and 75ohm coaxial cable for the unbalanced RCA SPDIF output.

The M5 can play digital audio data out of the AES and SPDIF simultaneously, so both can be connected to your DAC or 2 DACs and play out at the same time. But, it will not play to the AES and SPDIF simultaneously with USB output activated; it works with one or the other. To activate the USB, power up with USB connected to your DAC and the M5 will default to use the USB outputs, in this case the AES and SPDIF will not function. To switch back you must power off, remove the USB cable from the M5, power on and it will then use the AES and SPDIF outputs.

AC power

The M5 is supplied with a high quality power AC cord tipped with a 10-amp IEC connector that meets all safety requirements. You may use different power cord with the M5 providing it meet or exceeds all safety requirements noted elsewhere in this manual. Note that the M5 utilizes a linear power supply so adhere to all power indications on the outer box, and rear of the unit. Do not apply the incorrect voltage to the M5, this will damage the power supply and render the M5 unusable.

Power Up

Once all your cables are connected to the M5 it is time to power up. We recommend that your server and router be up and running before starting the M5. Our experience shows that this is a more reliable method for the M5 to communicate with the network and server application that is looking for it as a DNLA or Roon compatible device. In some cases, depending on the sequence of events, it may take time for this to connect, but when the server is up and ready it will connect in a few minutes. This is indicated on the front panel LED, when the M5 is connected it will then light on solid and stop flashing.

Power Up Sequence

Stand-By Mode:

The M5 has a dedicate AC mains power switch found on the rear of the unit, when first powering the M5 on from the rear panel the M5 will enter into stand by. The front panel LED will be blinking with a quick short blink to indicate power is on but waiting. This is a low current mode and only the power supply is ready but no current is drawn from the processors.

Run Mode

Next press the stand by button and the LED will now change to a faster rate of change indicating boot up of the processor and searching for a valid network connection. Once this is complete, about 10 sec, the LED will be on solid indicating successful boot up and valid network connection. The M5 should now appear in your media player or server as an available device to play to. If not then there is an issue with the network connection and server.

Placing the M5 Back to Standby

A quick press of the standby key from the running state will set the M5 into STANDBY mode, and the front panel LED will be flashing at the 1/3 speed, the processor will be shut down and the M5 will remain in low current mode. If desired you can fully power off the M5 from the rear panel AC in let switch, in this cases when powering back up you will have to repeat the above sequence as it will power back up into stand by.

Trigger In/Out:

The rear panel the M5 has 2 stereo connectors (Tip/Ring/Sleeve) for triggering the M5 into standby mode from an external device like a preamp or other external remote control. Sleeve is connected to chassis ground, Tip/Ring is the input +/-. The M5 will go in and out of standby when it has a positive 5V or 12V DC voltage between tip/ring, this system is implemented on our M12 source controller. The trigger out is a repeat of the trigger in voltage for easy daisy chain connections to another device like the M15 power amp.

Audio Specs and sample rates supported:

AES Output:	44.1kHz-192 kHz PCM and DSD 64 as DoP, Wi-Fi or Ethernet
SPDIF Output:	44.1 kHz-192 kHz PCM and DSD 64 as DoP, Wi-Fi or Ethernet
USB Output:	44.1 kHz-384 kHz PCM and DSD 64 and 128 as DoP, Ethernet only

Applications Supported:

The network audio player or what is also called a renderer is DNLA, UnPN and ROON compatible, so any application that supports these protocols will recognize and "see " the M5 as an device on the network to play to. The M5 is not a server, but a player or end point. The audio is rendered in the M5 and not in the server and this is the important difference when using the M5 in a networked setup, as the actual audio can be stored on any storage device on the network. We recommend Jriver Media Center for the PC and Mac, and Roon as the popular applications that support DNLA and of course Roon.

General Specifications

EMC

Complies with:	EN 55103-1 and EN 55103-2	FCC part 15, Class B

RoHS

Complies with:	EU RoHS Directive 2002/95/EC

Safety

Certified to:	IEC 60065, EN 55103-2

Environment

Operating Temperature:	32 F to 105 F (0 C to 40 C)
Storage Temperature:	-22 f to 167 F (-30 C to 70 C

General

Finish:	Anodized Aluminum
Dimensions:	8” wide, 2” high, 8.5” deep
Weight:	5 lbs
Shipping Weight:	8 lbs
Mains Voltage set at factory:	100, 120, 220, 230, 240 VAC, 50 Hz – 60 Hz
Trigger In:	TRS connector for 5V external trigger.
Power consumption:	1W standby, 5W running
Warranty parts and labor:	5 yrs limited

M5 Limited Warranty

Bricasti Design warrants the M5 against manufacturing defects for 5 years from date of purchase from an authorized Bricasti Design dealer.

1. The warranty covers only new products purchased from a Bricasti Design dealer or Distributor.
2. The warranty is nontransferable, valid for the original purchaser.
3. All service must be performed by an authorized Bricasti Design Dealer or Distributor
4. For USA customers, if the product is shipped back to Bricasti Design for warranty service, the customer pays for inbound shipping costs and Bricasti Design will pay for the return shipping.
5. Customer must provide proof of purchase to be eligible for warranty service.
6. All international customers must contact their local distributor for service.

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