

BRYSTON

BDA-2
OWNER'S MANUAL

IMPORTANT SAFETY INSTRUCTIONS

 The lightning flash with arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of un-insulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

 The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-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 or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus when moving it & during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

DO NOT EXPOSE THIS EQUIPMENT TO DRIPPING OR SPLASHING AND ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, ARE PLACED ON THE EQUIPMENT.

TO COMPLETELY DISCONNECT THIS EQUIPMENT FROM THE AC MAINS, DISCONNECT THE POWER SUPPLY CORD PLUG FROM THE AC RECEPTACLE.

THE MAINS PLUG OF THE POWER SUPPLY CORD SHALL REMAIN READILY OPERABLE.

UNPLUG MAINS CORD DURING TRANSPORTATION.

BRYSTON LIMITED WARRANTY

Bryston analog audio circuits are warranted to be free from manufacturing defects for twenty (20) years from the original date of manufacture. The warranty includes parts and labour.

Bryston Digital circuits and cables are warranted for five years from the original date of manufacture. The warranty includes parts and labour.

Bryston products having motorized moving parts, excluding motorized volume controls, are warranted for three years from the original date of manufacture. The warranty includes parts and labour.

Bryston will remedy the problem by repair or replacement, as we deem necessary, to restore the product to full performance. Bryston will pay only return shipping costs for the full length of the specific products warranty.

In the event of a defect or malfunction, contact Bryston’s repair centers for return authorization. Products must be returned using original packaging material only. Packing material may be purchased from Bryston if necessary. This warranty is considered void if the defect, malfunction or failure of the product or any component part was caused by damage (not resulting from a defect or malfunction) or abuse while in the possession of the customer. Tampering by persons other than factory authorized service personnel or failure to fully comply with Bryston operating instructions voids the warranty.

This warranty gives you specific legal rights and you may also have other rights which may vary from province to province and country to country.

As of 2006-02-22 Bryston will only warranty Bryston products purchased through authorized Bryston dealers. Bryston products with a date code of 0608 or higher (date code format is “yyww”, where “yy” is the two least significant digits of the year and “ww” is the week of the year) must be accompanied by a copy of the bill-of-sale from a Bryston authorized dealer to qualify for warranty service. The warranty is transferable from the original owner to a subsequent owner as long as a copy of the bill-of-sale from the original authorized Bryston dealer accompanies the re-sale. The copy of the bill of sale to any subsequent owner need ONLY include the Name of the Bryston Authorized Dealer and the Model and Serial number of the Bryston product. The warranty will only be honored in the country of the original purchase unless otherwise pre-authorized by Bryston.

BRYSTON SERVICE in CANADA:

Postal address: **PO. BOX 2170, Stn. Main
PETERBOROUGH, ONTARIO
CANADA K9J 7Y4**

Courier address: **677 NEAL DRIVE
PETERBOROUGH, ONTARIO
CANADA K9J 6X7**

PHONE: 705-742-5325
FAX: 705-742-0882
E-mail: cdnser@bryston.ca

BRYSTON SERVICE in the USA:

**79 COVENTRY ST., Suite 5
NEWPORT, VERMONT
U.S.A. 05855-2100**

PHONE: 802-334-1201
FAX: 802-334-6658
E-mail: usaser@bryston.ca

BRYSTON SERVICE outside Canada and the USA:

contact your local distributor or

CHECK OUR WEB SITE: www.bryston.ca
E-MAIL BRYSTON DIRECTLY: cdnser@bryston.ca
FAX BRYSTON DIRECTLY: 01-705-742-0882
PHONE BRYSTON DIRECTLY: 01-705-742-5325

FEATURES:

The Bryston BDA-2 is a State-of-the-Art external Stereo digital to analog converter using fully discrete analog class-A proprietary Bryston amplifier circuits.

- USB Audio Class 2 input (192KHz/24Bit asynchronous)
- Separate analog and digital linear power supplies
- Discrete Class A analog output stage
- Over-sampling
- Synchronous up-sampling (176.4K/192K)
- Independent Analog and Digital signal paths
- Eight digital audio inputs:
 - 1x USB Audio Class 2,
 - 4x SPDIF (co-axial wire)
 - 2x optical (TOSLINK)
 - 1x AES/EBU
- Sample rates: 32KHz, 44.1KHz, 48KHz, 88.2KHz, 96KHz, 176.4KHz, 192KHz
- 16-24Bit PCM, 16Bit 32K-48K USB
- Fully Differential Balanced XLR and Unbalanced RCA Stereo outputs.
- Transformer coupled SPDIF and AES/EBU Digital inputs.
- SPDIF COAX Bypass Loop Output
- Software upgradable via RS232 port
- Optional Remote Control
- Remote 12 Volt On/Off Trigger
- Compatible with CD Drives, Sound Cards, Computers, Music Servers.
- Cosmetically matches C-Series BP26, MPS2, BCD-1, etc

INPUT SELECTION:

The digital signal first arrives at the BDA-2 via either the SPDIF co-ax, TOSLINK optical, AES/EBU or USB input. These are the normal digital outputs from a CD Drive, Sound Card, Computer, Music Server etc. One of these 8 inputs is selected by either the front panel push button switches or the infra-red remote control.

OPTIONAL BR2 REMOTE CONTROL:

The BR2 infra-red remote control offered for use with the BDA-2 is a multi-function remote capable of operating not only the BDA-2, but also the BCD-1 CD player and many Bryston preamps and integrated amplifiers such as the BP26, BP6, BP16, BP17, B60R B100 & B135. For more information see the *BR2 Owner's Manual*.

POWER CONSIDERATIONS:

In general, if your BDA-2 has a three prong grounded line cord you can reduce the possibility of local ground loops which could cause hum or noise in the system by plugging its line cord into the same wall outlet next to the power amp and other equipment in your system.

UNDER-VOLTAGE INDICATOR:

The BDA-2 contains an under-voltage detection circuit which will illuminate the red Up-Sample LED if the connected AC supply voltage is approximately 20% or more below nominal (e.g. <96vac for a 120vac unit, or <185vac for a 230vac unit). When such an under-voltage condition exists the BDA-2 will not power up and the only LED to be lit will be the red Up-Sample LED.

INTERNAL FUSE

The BDA-2 contains a single fuse located inside the unit. IF it should become necessary to replace this fuse we recommend that you seek the assistance of qualified service personnel.

The fuse is 5x20mm glass fuse located on the power supply board in the rear left corner of the BDA-2. Replace this fuse only with the same part and type that is installed. Refer to the chart below to verify correct values. Before attempting to replace the fuse, disconnect all cables from the BDA-2 unit, especially the power cord. Remove the 10 screws securing the top cover using a Torx-8 screwdriver and slide the top cover towards the rear of the unit by approximately 1/4 inch before lifting it off the unit. After replacing the fuse, replace and secure the top cover before reconnecting the power cord.

BDA2 INTERNAL FUSES		
VOLTAGE	FUSE TYPE	Part No's.
100V~	T 500mA L 250V	218.500
120V~	T 500mA L 250V	218.500
230V~	T 315mA L 250V	218.315
240V~	T 315mA L 250V	218.315

BDA-2 FRONT PANEL:



CONTROLS & CONNECTIONS:

Section numbers refer to front/rear panel illustration:

1: SAMPLE RATE LED ARRAY: Eight LEDs arranged in 2 columns X 4 rows. Indicates the sample rate of the selected input and whether or not it is locked.

2: UP-SAMPLE: Engages up-sampling such that incoming sample rates of 32K, 48K or 96K sps will be up-sampled to 192K (LEDs - see above - light green), and 44.1K and 88.2K sps will be up-sampled to 176.4K (LEDs light amber) to allow for optimal DAC performance.

N.B. The Up-Sample LED may also be used to indicate an under-voltage situation wherein the AC supply voltage is approx. 20% or greater below nominal. See UNDERVOLTAGE INDICATOR section above.

3: OPTO INPUTS: There are two TOSLINK inputs for optical digital audio.

4: SPDIF INPUTS: There are four SPDIF inputs for coaxial cable connections. Two inputs have RCA (phono) connectors, and two have BNC connectors.

5: AES/EBU INPUT: There is one AES/EBU (Audio Engineering Society/European Broadcasting Union) fully balanced input using a 3 pin XLR female connector for a twisted pair wire connection of a digital audio signal.

6: USB input: There is a single USB Audio Class 2 input (24 bit/192KHz). New drivers may have to be installed in your computer to use this port. See pages 5 & 6 of this manual for more information. When connecting to a PC it may be necessary to direct the digital audio stream from your computer through its USB port to the BDA-2. To do so, click on your PC's *START* menu then select *CONTROL PANEL > SOUNDS & AUDIO DEVICES > AUDIO* and ensure that the *Bryston BDA-2* is selected

USB status indicators:

	Smpl.Rate	Lock	USB ₁	USB ₆
•USB selected & cable <u>not</u> connected	X	X	X	Red
•USB selected & cable connected*	X	X	Green	Red
•USB selected & cable connected**	X	X	Green	Green
•USB selected, connected with a valid signal:	Green	Green	Green	Green

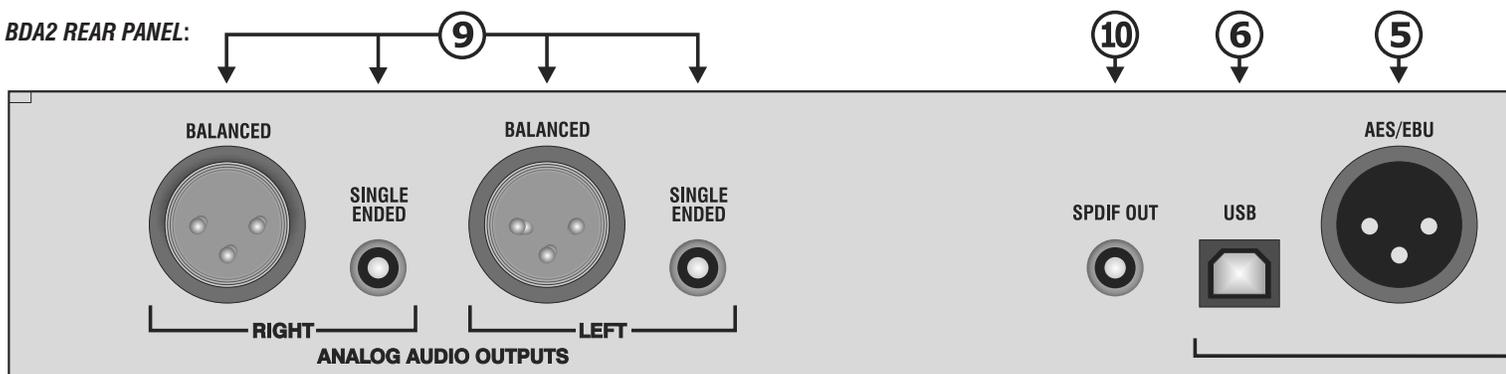
* the proper USB Audio Class 2 drivers are NOT installed.

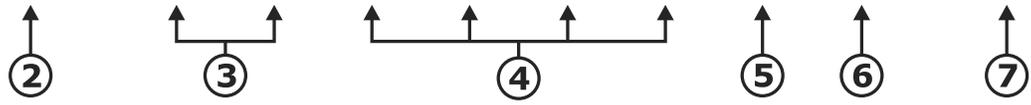
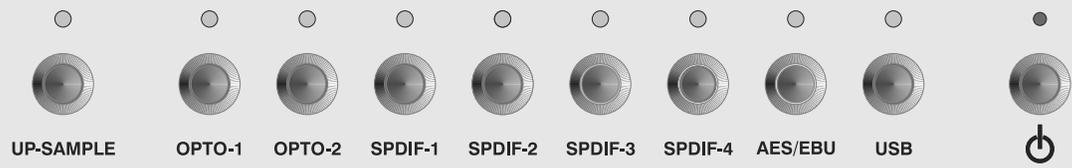
** the proper USB Audio Class 2 drivers are installed.

7: POWER SWITCH ~ STANDBY LED INDICATOR:

When the LED above the power switch is lit red the unit is on standby. If neither this LED nor any other LED on the front panel is illuminated then there is no power entering the unit or the internal fuse is blown. See also *Remote Trigger* section.

BDA2 REAR PANEL:





8: INPUT SIGNAL LED INDICATORS:

There are 8 LEDs to indicated which input has been selected. The LED will light green when a PCM signal is present at the selected input, and red for any other signal present condition, including AC3 multi-channel signals.

9: ANALOG AUDIO OUTPUTS:

The BDA-2 is supplied with one pair of gold plated RCA (*phono*) jacks for unbalanced (single-ended) outputs as well as one pair of fully balanced outputs on XLR male connectors. All connectors are gold plated and all output signals are fully buffered by Bryston's discrete analog audio amplifier stages.

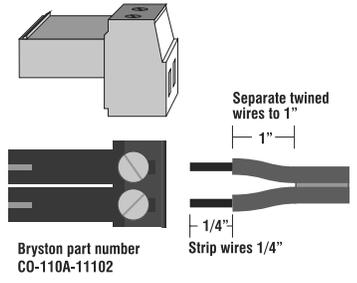
10: SPDIF OUTPUT:

The signal present at the SPDIF output connector is the same signal that is selected as an input source. This signal is unaltered except for USB input signals.

11: REMOTE TRIGGER INPUT:

The BDA-2 is supplied with a *Trigger* input put to facilitate remote hard wired on/off control. A two pin socket mates with the CO110A-11102 bare-wire terminal block connector supplied with your BDA-2 (see illustration above-right). Supplying a DC control voltage between 3 and 12 volts (at greater than or equal to approximately 3mA) will allow you to remotely power your BDA-2 on or off. The the *Remote Trigger* input takes precedence over the front panel push-button switch. If a valid control voltage is initially applied to

the trigger input when the BDA-2 is already powered on it may be necessary to toggle the unit OFF-and-ON once, via the *Trigger* input, to establish the precedence of the trigger input signal over the front panel power switch.

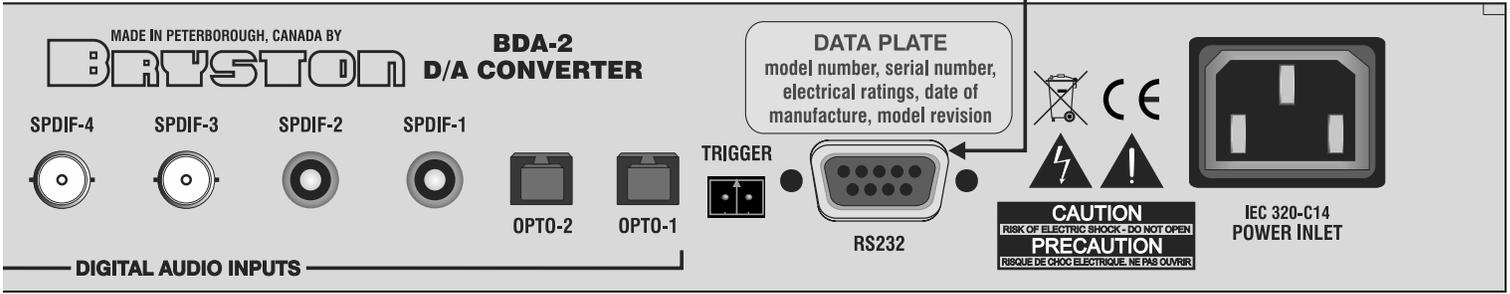


12: DATA PLATE: This label provides the units exact model number, serial number, electrical rating and date of manufacture. Do not remove.

13: RS232 PORT: For uploading new software into the BDA-2 (see Firmware Updates below) and for sending control codes to the BDA-2 from control systems such as Crestron & AVX. The DB9-female connector on the BDA-2 connects to a corresponding DB9-male connector on a computer capable of running a Windows executable program.

The control codes listed below mimic the actions of the corresponding buttons on the front panel of the BDA-2 & the BR2 remote control.

- 021: source OPTO-1
- 022: source OPTO-2
- 023: source SPDIF-1
- 024: source SDIF-2
- 025: source SPDIF-3
- 026: source SPDIF-4
- 027: source AES/EBU
- 028: source USB



- 029: Power ON/OFF (Toggle) 030: Upsampling ON/OFF
- 031: Power ON 032: Power OFF
- 033: UpSample ON 034: UpSample OFF

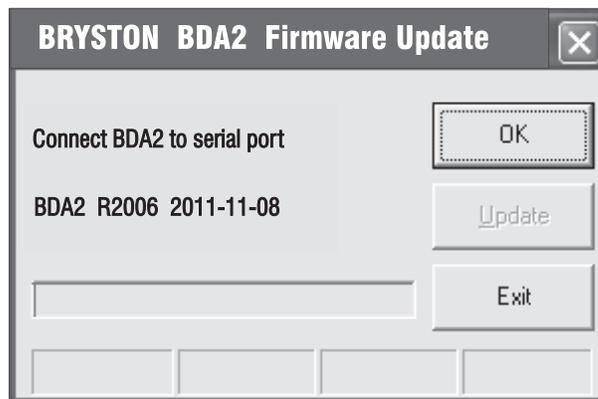
14: IEC POWER INLET : Use only approved IEC-320 power cords with C13 type connectors to mate with the BDA-2's IEC-320-C14 power inlet.

15: INFRA-RED SENSOR for remote control

FIRMWARE UPDATES

BDA-2 firmware updates will periodically be available from Bryston dealers or from Bryston Ltd. directly. These firmware updates will be supplied as an executable file (program) which, when executed on your PC, will search for available serial ports on your computer and then search for the BDA-2 before uploading and automatically installing the new firmware in your BDA-2.

- a) If the BDA-2 is ON, place it in standby by pressing the POWER button either on the front panel or on the remote control. When the LED above the POWER button lights red, the BDA-2 is in standby.
- b) Connect a suitable RS232 cable between your PC (sorry, but MAC's are not supported at this time) and the BDA-2. In most cases (depending on your computer) this cable will be a DB9-male to DB9-female straight through cable.
- c) IF your computer does not contain an RS232 serial port, but does contain a USB port, there are modestly priced USB to RS232 serial port adaptors available.
- d) Upon execution a dialog box similar to the one shown below (next column) will be displayed. Click on OK and the program will search for the BDA-2's serial port via any available serial port on your computer.



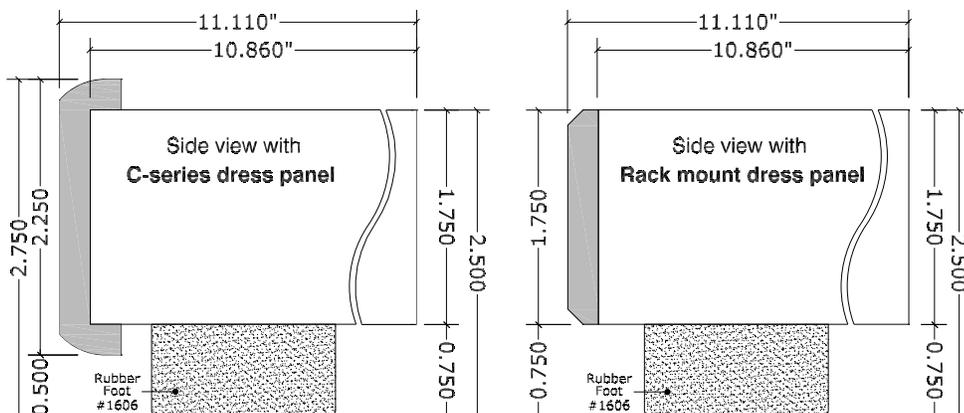
- e) When the BDA-2's serial port has been found, the dialog box will indicate this by displaying the message "BDA2 found on ComX". Click on UPDATE to initiate the update procedure.
- f) When completed and the final dialog box will prompt you to click on EXIT to finish.

N.B. In some cases it may be necessary to obtain a newer version of the Visual Basic control MSCOMM32.OCX. Contact Microsoft if you see warnings or cautions concerning this control.

SPECS & DIMENSIONS:

SPECIFICATIONS:

- Freq. Response: 20-20KHz ± 0.1 dB
- Noise: -140dB unweighted
- Output Level: 4.6v Bal, 2.3V Unbal
- Jitter: negligible
- THD+N: 0.002%
- IMD: 0.0003%
- Shipping Wt: 18 Lbs (8.2 Kg)
- Dimensions: 17" w(std) or 19" w(rack mount) wide (see diagram at right)



USB AUDIO CLASS 2 DRIVER INSTALLATION

MAC OS X Installation:

MAC OS 10.6.4 and above, natively supports USB Audio class 2, and no additional drivers are required.

Windows 7 Installation:

To use the Bryston BDA2 as a USB sound device, the Windows operating system requires additional USB drivers to be installed.

These drivers can be found on the Bryston USB key that is included in the box.

Connect the Bryston BDA2 to your computer.

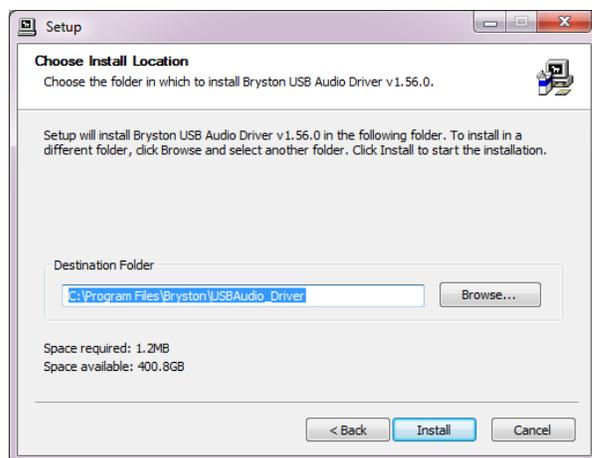
Plug the Bryston USB key into a USB port on your computer.

In windows explorer, navigate to the Bryston USB key (BRYSTON_USB).

Now run the file called "setup.exe". The following window will open:



Click the "Next >" button.

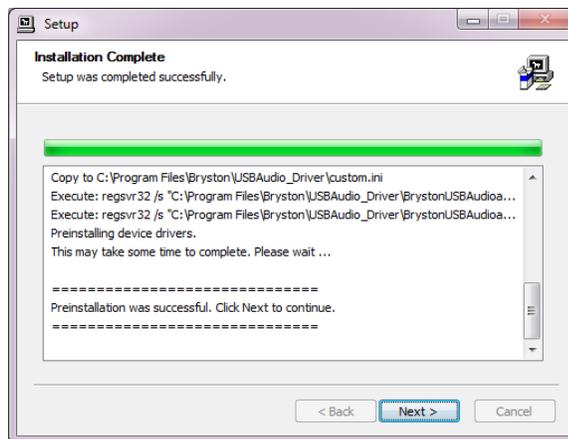


Install the Bryston USB Audio drivers in the default folder, or change the installation folder if required. Click the "Install" button.

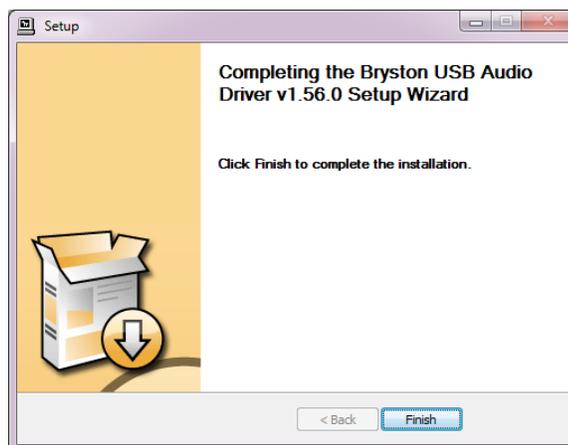
A Windows security warning will pop up twice.
The USB drivers are safe to use, so select: "Install this driver software anyway"



The setup wizard will copy all the necessary files and preinstall the drivers.
After successful installation, the following window will open.



Click the "Next >" button.



The setup wizard is finished and Windows will now install the Bryston USB audio drivers.
The Bryston BDA2 D/A is now ready to use as a sound device in Windows.