hello
my name is

BiX

gracedesign.com

Instrument Preamplifier / EQ / DI
Owner's Manual Rev. B

GRACE design

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Contents

1 Welcome

Thanks for purchasing the BiX! Like its bigger siblings FELiX and ALiX, it is designed to provide performing and recording musicians, such as yourself, with the highest quality preamplification available, while being totally reliable and easy to use. BiX is compact, rugged and great sounding, so no matter where and how you play - whether you toss it in your case, or mount it to your pedalboard, you can rely on it to sound great and work flawlessly for many years.

While setup and operation is pretty simple, please take a little time to read through this manual and familiarize yourself with its features and functions. It will make a big difference that you know exactly what to do to adapt quickly to whatever conditions may come your way on stage. Most of all, have fun and go play!

2 Safety and Symbols

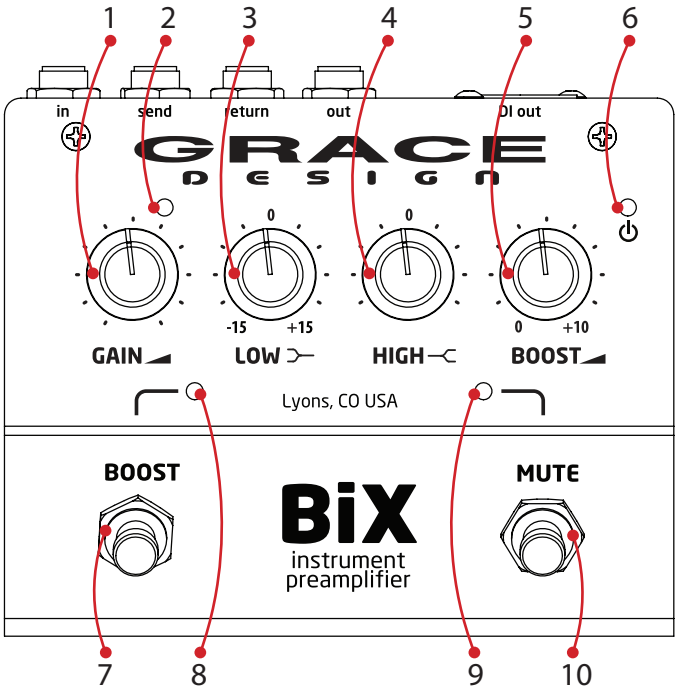
Caution: Read Accompanying Documents
This symbol, located on the equipment and in this manual, refers to important instructions. Read this manual thoroughly before operating this equipment.

Service Information
The Grace Design BiX contains no user serviceable components. Contact Grace Design for repair and upgrade information. In the event that your Grace Design BiX needs to be returned to the factory, contact us for a return authorization number.

3 Features

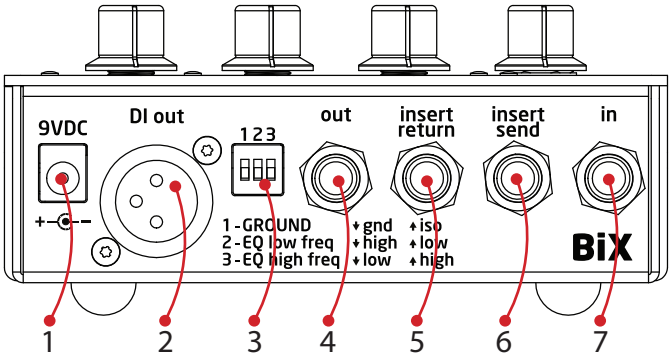
- 1/4" high impedance input
- Separate FX send and return
- 1/4" unbalanced line output
- Balanced XLR DI transformer iso output
- 10dB variable boost
- Mute and Boost footswitches
- High and Low shelving EQ
- Selectable EQ transition frequencies
- 9VDC operation
- Over 30V internal operating voltage
- Pedalboard friendly design
- 5 year transferable warranty
- Made in the USA

4 Top Panel Controls



1. GAIN control
2. SIGNAL present / peak LED
3. LOW EQ control
4. HIGH EQ control
5. BOOST control
6. Power LED
7. Boost footswitch
8. Boost active LED
9. Mute active LED
10. Mute footswitch

5 Rear Panel Connectors



1. 9VDC power input – 2.1mm center negative
2. DI out, balanced XLR transformer isolated
3. DIP Switches (ground lift, LOW EQ transition frequency, HIGH EQ transition frequency)
4. Line out 1/4" TS
5. Insert return 1/4" TS
6. Insert send 1/4" TS
7. Instrument input 1/4" TS

6 Unpacking and Installing

This BiX has arrived to you in a box that features Korvu® internal packaging, which was carefully designed to protect its contents from the uncertain world of freight handling. We recommend you hang on to this box in the event that you want to ship it somewhere, it will beat having to rummage around for a box and bubble wrap or worse, Styrofoam peanuts. This box contains:

- Your new pal, BiX
- 9VDC power supply
- This owner's manual

In the event that your are missing any of these items, please contact you retailer or us directly at 303-823-8100 and we will get you squared away.

6.1 INSTALLING

BiX is designed to operate like any normal footpedal - at your feet. You can carry it in your guitar case, shoulder bag, upon a magic floating pillow, or strapped to your pedalboard. If you choose the latter, you can remove the 4 threaded rubber feet to allow mounting with Velcro. Hang on to those rubber feet though, you may want them down the road. Also, remember

that when mounting it to your pedalboard, do so in a way that preserves access to the Instrument input and the XLR DI output, as they may need to be plugged and replugged on a nightly basis.

BiX is powered by a 9VDC input. This jack is a standard 2.1mm BOSS™ style, with center negative. The current requirement is 200mA, so you'll need to make sure you have this available from your pedalboard power supply. Or, simply use use the included 9VDC wall wart. We tested many supplies, and this is the lowest noise, lowest profile one we could find. If you want a spare or extras for other 9V pedals, they are available for sale at our webstore:

http://www.gracedesign.com/merch/accessories.htm

7 Plugging in

By holding the BiX in your hand, you're probably already have a pretty good idea what to do from here. Plug it in, turn it up and go. But keep reading, because there's some details that will help you get the most out of your new preamp.

7.1 1/4" INSTRUMENT INPUT

This is for connecting any instrument with a pickup to BiX. The connector is a standard 1/4" jack wired tip signal, sleeve ground. This input has a 10M **Ω** input impedance, which means even finicky high impedance passive pickups are going to sound great.

If your pickup is one that requires a lower input impedance (aka K&K), don't fret, your BiX has you covered. By wiring your input cable with a TRS connector and shorting the tip and ring (see diagram on p. 6), the instrument input impedance becomes 1M **Ω**.

7.2 INSERT SEND AND RETURN (FX LOOP)

This is a buffered, unbalanced insert point (pre boost) for connecting outboard effects or tuner to BiX. This allows mono outboard signal processing to be placed in series with the signal, while still utilizing all of BiX's output capabilities. They are 1/4" TS jacks each wired tip signal, sleeve ground. If you wish to connect just a tuner to the BiX, you may wire the SEND to your tuner's input and leave the RETURN disconnected. Doing so will allow your tuner to always be active even when the BiX is MUTED.

7.3 LINE OUT

This output is for sending an unbalanced, non-transformer isolated output to your tuner, a stage amp or anywhere else you may need an additional unbalanced signal sent. It is a 1/4" TS jack, wired tip signal, sleeve ground.

7.4 DI OUTPUT

This output is balanced and transformer isolated, for sending signal to a front of house, monitor console, or any mixer or interface where balanced, isolated signal needs to be sent. XLR pinout is: pin 2 positive, pin 3 negative and pin 1 ground.

7.5 9VDC POWER INPUT

This is where you provide life giving power to BiX. The jack is a standard 2.1mm BOSS™ style, with the center negative. Your power supply needs to be capable of delivering at least 200mA. Either use the included Grace Design power supply unit, or make sure that the supply you are using conforms with the power input requirements. For example, if using a Voodoo Labs™ pedal power 2 plus use one of the high current 9V outputs (jacks 5-6).

8 Operation

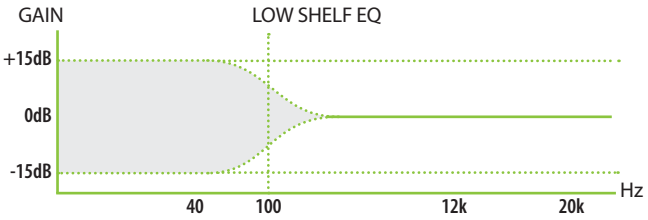
8.1 SETTING THE GAIN

The first control on the left side of the top panel is the GAIN control. With your instrument connected to the input and signal flowing, turn the GAIN knob clockwise until the signal / clip LED indicator is on and lit solid green. This will represent a good operating level. The indicator will start to flash red when your signal is 10dB before clipping, so an occasional red flash is ok, but mostly red means you should turn the gain control down / counterclockwise.

The BiX is designed with extremely high headroom and dynamic range. If using external effects in the insert of the BiX, it may be necessary to lower the gain to prevent clipping in your other pedals. Fear not as the BiX performs beautifully across its entire gain range.

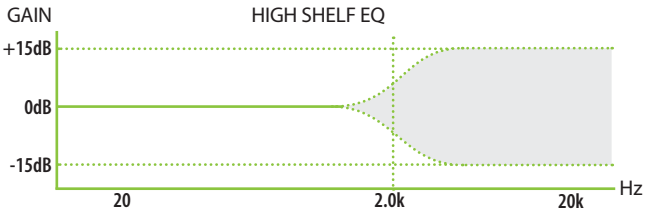
8.2 LOW EQ

The Low control of the BiX is fixed at either 100Hz or 200Hz transition frequency with a gain range of -15 to +15dB. This is a fixed shelving type control, which means frequencies below the selected transition frequency are boosted or cut. Use this control for cutting and boosting bass frequencies. It's all about the bass.



8.3 HIGH EQ

The High control of the BiX is fixed at with a 2kHz or 4kHz transition frequency, with a gain range of -15 to +15dB. Again, this is a fixed shelving type control, which means everything above the selected transition frequency is boosted or cut. Otherwise known as the treble knob. If you think your banjo may be too bright (which it probably is), turn this knob counterclockwise. If you think your electric 2 string gourd needs a little more bite, turn this knob clockwise. If you're not sure, start turning it one way or the other until it sounds better.



8.4 EQ BASICS

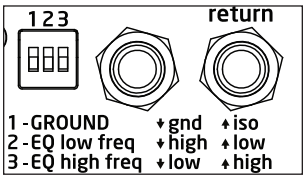
With such a simple EQ section, it's easy to make quick, broad adjustments to you instrument's signal. You won't really be able to chase down and make surgical adjustments to a particular trouble spot, but you'll find with a little practice you can easily adjust your tone in a useful way. If your instrument really requires a more surgical approach (i.e. parametric EQ control), you can easily insert one into the FX loop.

Here's a couple of tips for getting a sound you like quickly:

Is your instrument:	
Too bright or shrill?	Turn down the HIGH
Too dull or dark?	Turn up the HIGH
Too thin?	Turn up the LOW
Too bassy?	Turn down the LOW
Want more mids?	Turn down the HIGH and LOW controls and turn up the Gain
Want less mids?	Turn up the HIGH and LOW controls and turn down the Gain

Further EQ adjustments can be made by the DIP switch controls on the rearpanel. These settings are explained in the following section.

8.5 DIP SWITCH CONTROLS

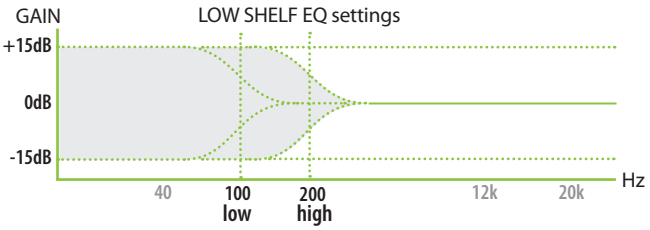


These are small switches (located on the rear panel) and are designed to be hard to move so they don't become inadvertently switched. To move them, use the tip of a guitar pick, car key or something pointy enough to move it up and down. Unless you are given to lavishly ample pedicure tendencies, your fingernail may or may not work. Just be careful not to use something too sharp as to booger up the switch.

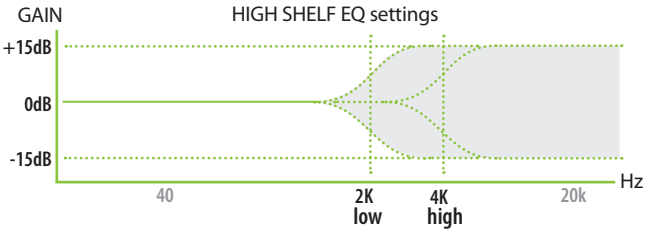
They select the following:

1. **GROUND:** Selects between ground (**gnd**) / ground lift (**iso**) for the DI output. Use this switch if you are experiencing a buzzy, unwanted ground noise on your signal. This will be due do a ground loop somewhere in your setup between the BiX and other equipment, amps, mixer etc… If lifting the ground here does not remedy the problem, you will need to try to lift the ground of other equipment in your setup.

2. **EQ low freq:** Selects between the 2 available Low EQ transition frequencies – 100Hz (**low setting**) and 200Hz (**high setting**). These numbers represent the point at which the Low EQ filter is at half of its peak gain. These settings let you voice the EQ's performance to your particular instrument. For example, a Bass may benefit from EQ control in the lower part of the frequency spectrum, in which case the 100Hz setting would be best. Or if you have a fiddle which has very little sound below 200Hz, the 200Hz setting will be better making adjustments to the low end of the instrument.



3. **EQ high freq:** Selects between the 2 available High EQ transition frequencies – 2kHz (**low setting**) and 4kHz (**high setting**). These numbers represent the point at which the high EQ filter is at half of its peak gain. So these 2 settings effectively let you voice the EQ's performance to your particular instrument. For example, an instrument with particular EQ needs around and above the 2kHz range may benefit from EQ control in the lower part of the frequency spectrum – for an instrument that needs more cut or boost of upper mids. Or use the 4kHz setting to only tailor the higher frequencies of an instrument.



As with all EQ settings, the more you know about what your instrument needs the better off you will be making adjustments on the fly. We recommend you get to know these controls and experiment a lot with them to find what works best.

8.6 BOOST

Need to rock a wee bit harder? This knob will let that happen. It sets the amount your signal is boosted when you activate the 'BOOST' footswitch. Fully counter-clockwise is zero boost added, fully clockwise adds +10dB of boost. The boost is after the FX loop and affects both the DI and line outputs.

As you can probably imagine, if you are using a particularly feedback prone pickup system / acoustic instrument, adding boost might easily send you in to feedback territory. So start small. If you need to boost your output, start with a gentle boost amount and work your way upwards. If you start to hear stage feedback or are overloading the input at the console, then you'll need to back it off.

Disclaimer: BiX and all its associated parties are not responsible for disgruntled sound people or bandmates you may encounter during the operation of the boost circuit.

Extra Credit: Try the BiX at the front end of your electric guitar rig. The boost circuit may just help send the input stage of your tube amp into a beautiful, earthy overdrive.

8.7 BOOST SWITCH

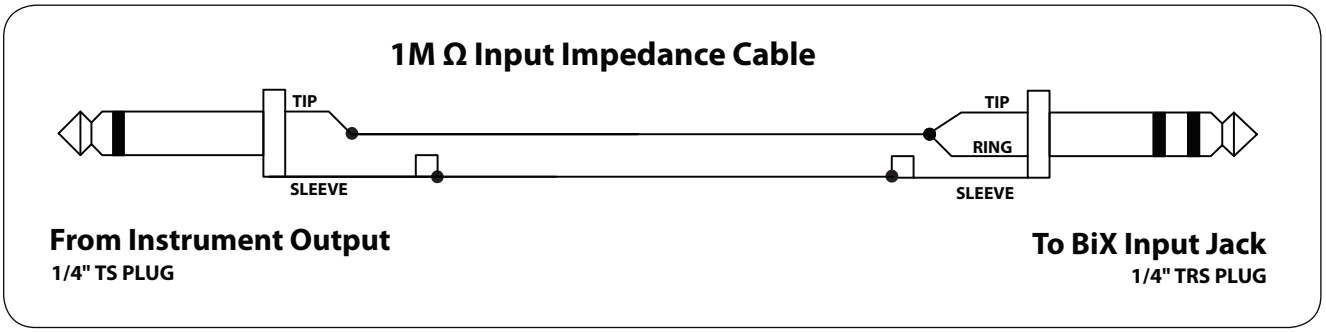
Yep. This switch activates the Boost circuit, at whatever level you set with the boost knob. This circuit is global, so the boosted signal will be coming out of every output. For those about to rock, you'll need to activate this switch first before we can solute you. The LED will light up AMBER for awesome.

8.8 MUTE SWITCH

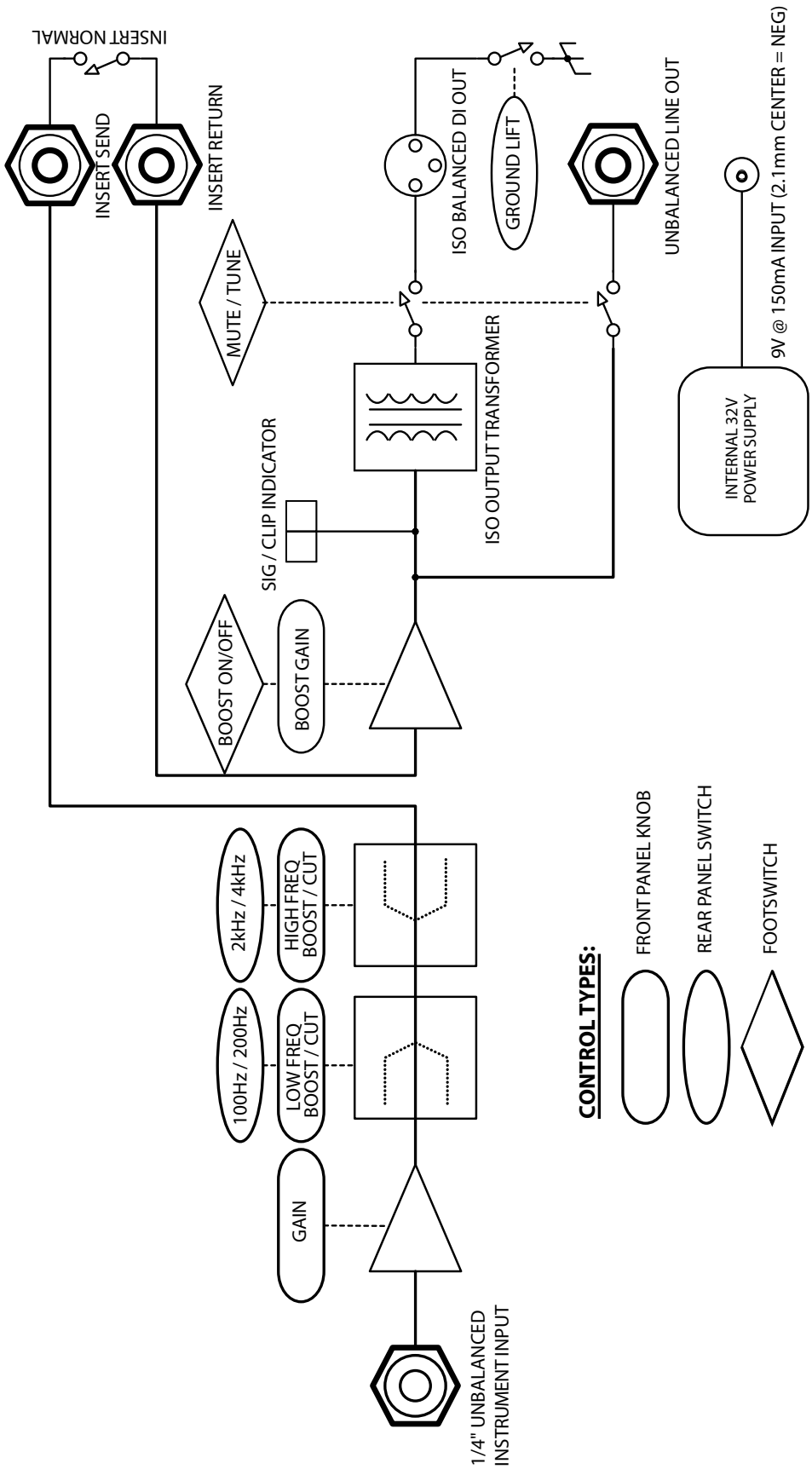
This switch mutes the DI and AMP outputs. This enables you to quickly and easily cut your signal to the FOH or stage amp and tune or unplug your instrument without having to have the soundperson mute your channel. When MUTE is active, the adjacent LED illuminates RED.

9 1M Ω Input Cable Diagram

If you have a lower impedance pickup, most notably the K&K Pure Mini, you may experience excessive low end and possible distortion at the standard 10M Ω input impedance. If this occurs, simply wire an instrument cable according to this diagram. This will give you a lower 1M Ω input impedance and your pickup will sound great.



10 Block diagram



11 Specifications

GAIN RANGE	
Line Output	0dB to +37dB
DI Output, Level: Line	-29dB to +8dB
Boost	0dB to +12dB
THD+N 22Hz-22kHz BW	
1kHz @ 0dB Gain +10dBu out	< 0.002%
1kHz @ 20dB Gain +10dBu out	< 0.002%
1kHz @ 36dB Gain +10dBu out	< 0.005%
INTERMODULATION DISTORTION - SMPTE/DIN 4:1 7kHz/50Hz	
@ 36dB Gain +10dBu out	< 0.008%
FREQUENCY RESPONSE	
Line output @ 20dB Gain -3dB	10Hz – 185kHz
DI output @ -9dB Gain, -3dB	10Hz – 40kHz
I/O IMPEDANCE	
Instrument Input	10MΩ (1MΩ with TRS cable, tip and ring shorted)
Insert Input	200kΩ
Insert Output	150Ω
Line Output	150Ω
DI Output	150Ω
SIGNAL / PEAK LED METER	
Green threshold	-13dBu
Red threshold	+12dBu
MAXIMUM INPUT LEVEL	
Instrument Input	+22dBu
Insert Return (0dB Boost)	+22dBu
MAXIMUM OUTPUT LEVEL - 100k Ohm load, 0.1% THD	
Line Output	+22dBu
DI Output (Mic)	-7dBu
Insert Output	+22dBu
EQ	
Gain	+/-15dB
Low Frequency (Low Range)	100Hz
Low Frequency (High Range)	200Hz
High Frequency (Low Range)	2kHz
High Frequency (High Range)	4kHz
DYNAMIC RANGE 22Hz-22kHz BW	
Minimum Gain, Line Out	129dB
Minimum Gain, DI Out	129dB
OUTPUT NOISE 22Hz-22kHz BW	
Minimum Gain, Line Out	-107dBu
Minimum Gain, DI Output	< -120dBu
Maximum Gain, Line Out	-78dBu
Maximum Gain, DI Out	-106dBu
POWER	
Connector	2.1mm Center Negative
Nominal Input Voltage	9VDC
Nominal Input Current	150mA
Input Voltage Range	6VDC – 12VDC
WEIGHT and DIMENSIONS	
1.2lbs (0.55kg)	H2.5" x W5.1" x D4.5" (H6.35cm x W13.0cm x D11.4cm)

12 Cleaning and Care

Your BiX chassis is constructed out of high quality aluminum and steel. Under normal circumstances, very little maintenance is required to keep it looking good. However, if you find it getting more dirty or dusty than you like, here are some cleaning tips: We recommend using a little shot of Windex™ applied to a clean, dry, lint free cloth. Gently wipe all surfaces, taking care not to allow the cleaning product to build up around or under the knobs.

13 Warranty Info

- Grace Design warrants this product to be free of defective parts and workmanship for a period of five years. This warranty period begins at the original date of purchase and is transferable to any person who may subsequently purchase the product during this time.
- This warranty excludes the following conditions: normal wear and tear, misuse, customer negligence, accidental damage, unauthorized repair or modification, cosmetic damage and damage incurred during shipment.
- During the time of this warranty, Grace Design will repair or replace, at its option, any defective parts or repair defective workmanship without charge, provided the customer has appropriate proof of purchase and that the product has its original factory serial number.
- In order for Grace Design to provide efficient and timely warranty service, it is important that you mail the completed warranty registration card enclosed with all of our products within 10 days of the original date of purchase. You may also register your product directly with Grace Design by telephone (303-823-8100 Monday-Friday 9:00am to 5:00pm MST), or you can register your product online at www.gracedesign.com.
- This warranty is in lieu of all other warranties whether written, expressed, or implied, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.
- In no event will Grace Design be liable for lost profits or any other incidental, consequential or Exemplary damages, even if Grace Design is aware of the possibility of such damages. In no event will Grace Design's liability exceed the purchase price of the product.
- This warranty gives the customer specific legal rights. The customer may also have other rights, which vary from state to state. Some states do not allow limitations on implied warranties or consequential damages, so some of the limitations of the above may not apply to a particular customer.

14 Manual Revisions

Revision	Page	Change	Date	Initials
A	all	Initial release	01/24/2017	edg
B	4,6,8	Added 1M **Ω** input impedance option	02/07/2017	edg