Congratulations and Thank You
For Purchasing the MIDIFly®

Since the introduction of Parker guitars in 1993 we have received an over-whelming amount of positive comments from players and reviewers alike, such as; "It's everything a guitar should be," "Light and vibrant," "Alive, totally responsive to the touch," and "A pure tone engine." Along with the praise has been one common request, "When will Parker make a MIDI guitar?"

That time is now!

The new MIDIFly guitar features Parker's versatile magnetic and piezo pickup design along with Virtual DSP's MidiAxe™ guitar-to-MIDI converter system. Utilizing the Fishman® piezo circuit to trigger the internal MIDIFly DSP, the results are a fast tracking and amazingly stable "glitch friendly" MIDI guitar controller.

The MIDIFly is also extremely easy-to-use due to the lack of complex MIDI user controls. Using a simple yet functional design, the guitarist can intuitively control the essential functions of MIDI, along with the magnetic and piezo pickups, from the normal array of controls he is already accustomed to in one single instrument.

MIDI IN and OUT ports are provided that allow standard connection to any MIDI device from synthesizers to computers. This is a big improvement over current MIDI guitar systems that require a clumsy 13-pin connector and external converter box as well as additional pickups added to the guitar.

Improved tracking and stability, simple to operate controls, plug-and-play operation, software updateable design; a MIDI guitar that finally makes musical sense!

Features and Controls

- Solid hardwood body
- One piece solid wood neck encapsulated in glass and carbon fibers
- Composite finger board
- Hardened stainless steel frets
- Easy-Access truss rod adjustor
- Sperzel® locking tuning machines
- Custom DiMarzio® magnetic pickups
- FISHMAN® Active Piezo pickup system
- Built-in MidiAxe™ digital guitar-to-MIDI converter system
- Cast aluminum bridge with stainless steel bridge saddles
- 3/16" stainless steel vibrato bar
- Stereo output jack featuring "Smart Switching"
- MIDI IN/OUT connectors
- Magnetic Pickup Volume Control
- Five-Position Magnetic Pickup Selector
- Magnetic Pickup Tone Control
- Pickup Selector, (Magnetic/Both/Piezo)
- Piezo Volume Control
- MIDI/Synth Volume Control
- MIDI Mode Switch
- MIDI Octave (Transpose) Switch

Precautions

- Please read all of the instructions in this owner's manual.

- Avoid getting the MIDIFly wet and don't use it near water. If you do you run the risk of damaging the MIDIFly and possible electrical shock.

- Unplug the AC adapter from the power outlet if the unit is not going to be used for a long period of time.

- If the MIDIFly fails to operate properly, do not attempt your own repair. Please contact your dealer or our technical support group for information on the nearest authorized service location.

NOTE: During normal operation the electronics compartment on the back of the MIDIFly body will be warm to the touch. This is normal and is not an indication of a problem.

WARNING: *The use of an AC adapter other than the one supplied with the MIDIFly may cause overheating and/or damage to the MIDIFly .*

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 to correct the interference by one or more of the following measures:

- *Reorient or relocate the receiving antenna*

- *Increase the separation between the equipment and 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*

This equipment complies with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. In order to maintain compliance with FCC rules, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables may cause interference to radio or TV reception. The user is cautioned that modifications made to this equipment without the manufacturer's approval could void the user's authority to operate this equipment.

Getting Started

Connections on the MIDIFly

There are three connectors on the MIDIFly:

MIDI IN
MIDI IN
Stereo 1/4" phone jack.

MIDI In (nearest to the 1/4 in. phone jack)
This connector supplies two functions:

1) Allows the user to communicate commands to the unit for upgrading software and modifying the user configurable parameters by means of Sysex messages (more on this later).

2) Allows for MIDI Thru capability to support the use of a breath controller or similar device. The MIDI Thru capability is limited in that only Channel Voice messages (hexadecimal 80...EF) are passed from input to output. Any other messages will not be transmitted.

MIDI Out (farthest from the 1/4 in. phone jack)
The supplied MIDI cable should be connected from the MIDI Out of the MIDIFly to the junction box at one end with a MIDI connector and stereo phone jack at the other. The MIDI connector plugs directly into the MIDI Out on the Guitar. This is a special MIDI cable in that it supplies power to the MIDIFly electronics from the junction box at the other end. All MIDI commands generated by the MIDIFly and passed from MIDI In are sent out this connector.

> **NOTE:** Plugging the MIDI cables into the wrong connector will not cause damage to the MIDIFly, it just will not work.

Stereo Phone Jack

The MIDIFly generates two audio outputs. The output of the Magnetic pickups is on the tip of the stereo phone jack(???)while the output of the Piezo pickups is on the ring of the stereo phone jack. A special active mixer/preamp circuit is switched on when a cable is connected. This "Smart Switching" output jack, automatically senses whether the cable is stereo or mono. (More on this in the Audio Controls section.)

> **NOTE:** Because the MidiAxe™ MIDI conversion circuit receives its signal from the piezo system, a cable must be plugged into the MIDIFly's output jack to switch on the piezo system and for the MIDI circuit to operate.

The MIDIFly can operate as a "normal" guitar by plugging any standard guitar cable into the output jack even if the MIDI power supply is not connected.

Connections on the MIDIFly /MidiAxe Phantom Power Supply

The MIDI Power Supply/junction box supplied with the MIDIFly has three connections .....

MIDIFly Out
Synth Out
AC Adapter power in

MIDIFly Out

This connector will accept any MIDI cable and actually supplies power to the MIDIFly's MidiAxe™ circuit as it receives the MIDIFlys MIDI out signal (then transmitting it on to a connected MIDI synth).

Synth Out

This connector will accept any MIDI cable to your synth, computer, or other MIDI receiving device. Unlike the MIDIFly Out connector on the other side of the PHANTOM POWER SUPPLY there is no power to Synth Out connector.

AC Adapter Power

The "wall-wart" style AC adapter supplied with the MIDIFly is set for the proper voltage. Use of any other AC adapter is not recommended. When the adapter is plugged into both the phantom power supply and an AC outlet, the power LED should be on. There is no on\off switch anywhere on the MIDIFly or the phantom power supply box.

MIDI Controls

Synth Volume (located below the neck position pickup)
Adjustment of this control causes Channel Volume MIDI commands (controller #7) to be sent out for the MIDI channels currently selected.

Mode Switch (closest to the Synth Volume knob)
This 3-way switch selects one of three modes, Single Channel Mode with pitch bend off, Single Channel Mode with pitch bend on, and Multi Channel Mode with pitch bend on.

Mode 1 (Up Position) - In Single Channel Mode with pitch bend off all strings output to the same channel with no pitch bend output. Default channel is 1.

Mode 2 (Center Position) - Same as Mode 1 except that pitch bend messages will be sent as long as only one note is on. If a second note is turned on pitch bend is set to neutral and Mode 2 functions the same as Mode 1.

Mode 3 (Down Position) - In this mode, each string outputs to a separate channel and pitch bend is always on. The default channels for strings 1 through 6 are MIDI channels 1 through 6 respectively.

Octave Switch (farthest from the Synth Volume knob)
This 3-way switch shifts the notes up or down one octave. The center position is the normal, no octave shift, position. With the switch in the up position, notes are shifted down an octave. In the down position, notes are shifted up an octave.

Audio Controls

1. Magnetic pickup Volume - Nearest the bridge position pickup

2. Magnetic pickup Tone - Below the 3-position magnetic/both/piezo selector switch

3. Five-Position Pickup Selector Switch.

4. Piezo Volume - Above the 3-position magnetic/both/piezo selector switch

5. 3-position magnetic/both/piezo selector switch - Between the Mag Tone and Piezo volume

   This toggle switch has three positions:

   > **Magnetic Pickups** (toward the neck)
   > **Both** (middle position)
   > **Piezo Pickups** (toward the output jack)

"Smart Switching" output jack

The MIDIFLY is equipped with both FISHMAN® Piezo and DiMarzio® magnetic pickups. A special active circuit featuring a "Smart Switching" output jack, automatically senses whether a stereo or mono jack is inserted. This circuit makes it possible to mix (or sum) the piezo and magnetic pickup signals, by automatically sensing the output cable, and play both sounds through a single amp, or split them to two separate amps or mixers.

1. Mono Guitar Cable

When a standard mono guitar cable is inserted, the guitar's two signals (magnetic and piezo pickups) are automatically mixed or summed. Both sounds can be played through a single guitar amplifier or mixer.

2. Stereo Cable

When a stereo guitar cable is inserted, the guitar's two signals (magnetic and piezo pickups) are automatically split in stereo. The special stereo to Y cable provided with the guitar allows you to send the two signals to two separate amplifiers. The Piezo pickup will sound its best through a PA, an Acoustic Guitar amp, a Keyboard amp, or some other high-fidelity unit.

NOTE: An audio cable must be plugged into the MIDIFly's output jack for the MIDI circuit to operate.

Piezo Balance Trim Pot

Your guitar is equipped with a Piezo Balance Trim Pot. We set this control at the factory so that the full volume outputs of the Piezo and magnetic systems are equal. Since string gauges and pickup height affect the output of the magnetic pickups, you may want to change the relative levels of the two systems by adjusting the Piezo output.

To do this remove the three pickguard screws nearest the controls. Carefully lift the pickguard and adjust the small, white control located on the Stereo/Mono switch circuit board with a small screw driver. This "trim pot" adjusts the output of the Piezo pickup.

Battery

Because the two kinds of pickups have "irreconcilable impedance differences," their outputs cannot be mixed without the help of an electrically powered (active) circuit. The 9 volt battery that powers the FISHMAN® Piezo pre-amplifier has a life of approximately 150 hours. The circuit switches on when a cable is plugged into the guitar, so to conserve batteries, unplug the cable when you're not playing your MIDIFLY.

NOTE: The active piezo system supplies the signal to the MidiAxe™ digital MIDI conversion circuit, so if a battery is low (or dead) MIDI tracking will be degraded or not operational.

To replace the battery, release the catch and swing open the doors. The flip-out holder will not close if the battery is installed incorrectly. Please be gentle!

Piezo Frequency Response

Piezo pickups have far greater treble response than magnetic pickups. Some amps have no trouble with the additional high frequency output, but others may distort. If this happens, either lower the Piezo volume at the guitar or amp, or try lowering the treble control of the amp.

Ground Loops

Sometimes when using two amps, there may be a loud hum when the guitar is plugged into the second amp. This hum is caused by a ground loop. This ground loop isn't the fault of the guitar (or the amps for that matter), but rather the result of essential electrical safety code requirements. Ground loops can occur whenever two pieces of electronic equipment are connected.

NOTE: Do Not Disconnect Or Otherwise Attempt To Defeat Ground Connections On Your Electrical Equipment !!

There is ONLY ONE safe way to rid yourself of ground loops .....

Use a Direct Box with a ground lift to isolate the two amps. Plug the Magnetic end of the stereo "Y" mono cable into one amp and the Piezo end into the Direct Box. Plug the Direct Box's output into a balanced input on the second amp.

Adjusting your MIDIFly

If you're unfamiliar with adjusting instruments, we suggest that you take your MIDIFly to a qualified guitar technician. He or she can help demonstrate these adjustments and you can decide which ones you are comfortable making yourself and which ones you might prefer to have made professionally.

Vibrato Adjustment

Start from HOME: When the bridge is adjusted parallel to the top of the guitar and the guitar is in tune, the bridge is in the HOME position.

MIDIFly guitars are set-up at the Parker Guitar Factory with D'Addario® strings. Three coil springs balance the tension of the strings. When you change string gauges or use alternate tunings, you alter the string tension. This changes the attitude of the bridge, and therefore, you will need to re-adjust the bridge to the HOME position. To do this, remove the back cover, and with the guitar tuned to pitch, tighten or loosen the two phillips head "CLAW" screws to reset the bridge parallel to the top of the guitar.

The MIDIFLY Vibrato is a high quality, stable system that can be operated in three MODES:

1) Balanced

In this MODE the bridge can bend up and down ("free floating"). The Stop Screw must be adjusted (lowered) so that it won't prevent the bridge from bending up. The HOME position of the bridge is set by adjusting the CLAW screws (balancing the tension of the coil springs).

2) Bend Down

3) Fixed

This MODE is similar to the Bend Down MODE. HOME position is also set by contact with the Stop Screw. Additional spring force is applied against the stop by tightening the CLAW screws. The bridge will still bend down, but with a stiffer feel. In this MODE you can bend a string while other strings are sounded and not change their pitch. Like the Bend Down MODE, resting your hand on the bridge will not throw it out of tune.

No matter which MODE you prefer to use, it's quickest to tune, set intonation, and adjust the action of your MIDIFly in the Fixed MODE.

Stop Screw

Using the larger T-handle Allen wrench supplied with your guitar, the Stop Screw can be adjusted to limit or stop the bridge from bending up to any desired place.

NOTE: When you raise or lower the Action you should also raise or lower the Stop Screw by the same amount (unless the Stop Screw has already been fully lowered for the Balanced MODE).

Action

Action (bridge/string height) is adjusted by two screws from the back of the guitar. Using the larger T-handle Allen wrench, turn the screws clockwise to lower the bridge, and counterclockwise to raise it. Also, It's good practice to alternate between the two screws, taking no more than 1/4 turn at a time.

Truss Rod Adjustment

If you're unfamiliar with adjusting a truss rod, we STRONGLY suggest that you have this adjustment made by a qualified guitar technician.

The truss rod adjuster wheel is easily accessible. To adjust the truss rod, use the 1/8" steel rod supplied with your guitar. Rotate the wheel towards the high E string to tighten the truss rod and towards the low E string to loosen it.

Adjusting The Magnetic Pickups

Each DiMarzio® pickup is held to the pickguard by two screws. These screws also adjust the pickup's height. Turn the screws clockwise to raise and counterclockwise to lower the pickup.

Intonation

To set the intonation (string length), loosen the screws that hold the bridge saddles using the smaller T-handle Allen wrench supplied with the guitar. If a string plays sharp, slide the saddle back to make the string longer. If it plays flat, slide it forward. Do not over-tighten the saddle screws. The Piezo-electric elements in the bridge are delicate, so be careful. The eraser end of a pencil is a safe tool for sliding the saddles. No hitting!

Tuning Machines

We proudly use Sperzel® tuners-designed and manufactured in the USA-because they combine excellent quality and design, the best string locking system, and minimum weight. Sperzel's® patented string clamp eliminates the need for tying and multiple string wraps, greatly improving tuning stability.

To remove a string, loosen the clamp knob at the back of the tuner. Before re-stringing, turn each tuner until the hole in the string post is in line with the string path. Feed the string through, pull out the slack, tighten the clamp knob, and tune up. You're doing it right if you end up with less than 1/4 of a full wrap on each string post.

Frets

Our patented fret and fretboard system consists of hardened stainless steel frets bonded to a glass and carbon fiber fretboard. Not only will these unique frets outlast ordinary soft nickel frets, but due to our totally unique super-accurate manufacturing processes, they all have the correct "half-round" shape.

NOTE: The frets may only be serviced at the Parker Guitar Factory or by a PGF Authorized Repair Facility. Fret service performed otherwise will void the warranty.

MIDIFly CD-ROM (PC) Editor

MidiAxe™ Utilities Rev 1.0
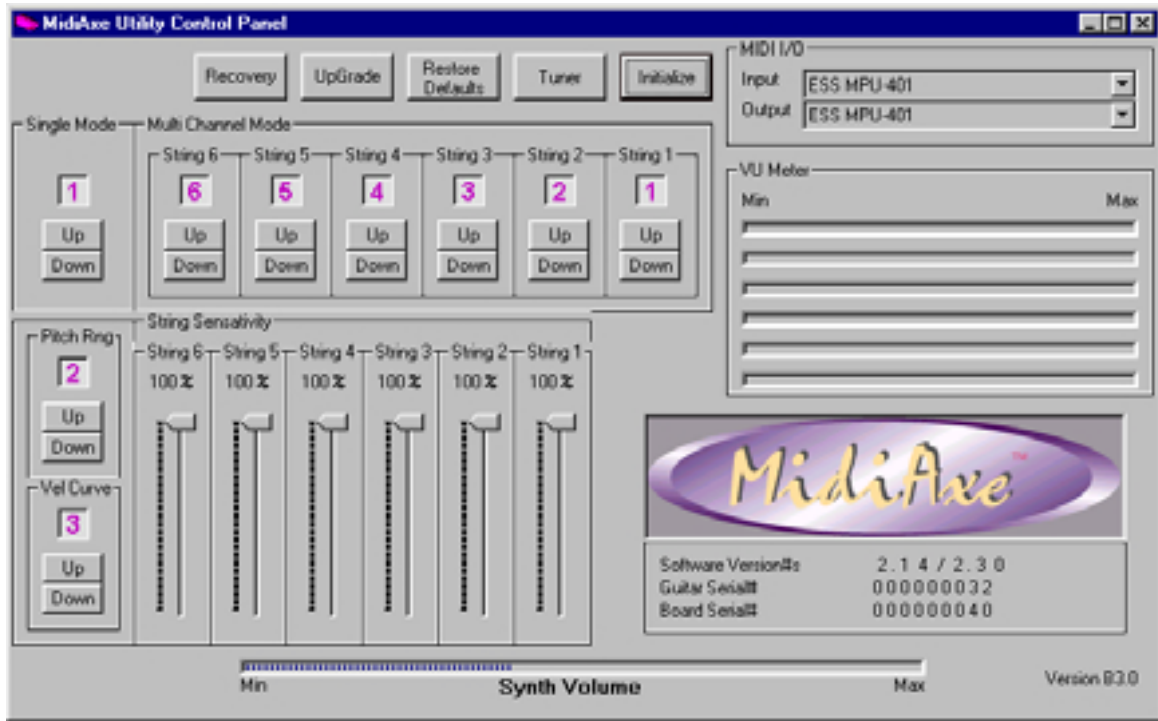
The MidiAxe™ Utilities Panel is a Windows 95/98/NT software program that allows users to customize settings for their MidiAxe Equipped digital guitar, check the status of the MidiAxe software, and provides a method for upgrading the guitar to future versions of the MidiAxe operating system software (these software upgrades may be obtained from the MidiAxe website at www.midiaxe.com). Most of the controls are on the panel map to simple MIDI "System Exclusive" (SysEx) commands which can also be created using other third party MIDI panel design tools or programmable hardware MIDI control devices (see the MidiAxe User's Manual for the SysEx command specification).

All of the parameters of the MidiAxe that can be changed by panel controls are programmed at the time of the change and remain in effect thereafter. If the user gets lost or simply wants to return the guitar to the original configuration it is a simple operation to just hit the "Restore Defaults" button.

NOTE: Normally most MidiAxe users will not normally need to use this panel because the most common controls are preset at the factory for easy plug and play operation. However, because each user may want to customize his or her guitar parameters, the MidiAxe Utilities are provided to make for a completely programmable MIDI Guitar system.

Software Installation

Each MidiAxe™ Equipped guitar is shipped with a CD containing this utility which enables the more technical user to access some of the programmable features of the MidiAxe Equipped system. The install is accomplished by inserting the CD in the CD-ROM drive and using Windows Explorer to locate the setup program.

Steps:

1) Insert the MidiAxe™ Utilities CD into the CD ROM Drive

2) Double Click on "setup.exe"

3) Follow the install dialog boxes for selection of the location on your hard disk

4) When the install has completed, reboot the computer and then select:

START ⇨ PROGRAMS ⇨ MIDIAXE UTILITIES

NOTE: If the setup fails or is cancelled, all temporary files will be removed from the computer and the user may try again later.

Panel Operation

Selecting the Proper System MIDI Interface

The first step to using the panel is to make sure the correct MIDI interface on the computer is selected. There is a MIDI I/O selection pull down list in the upper right hand corner of the panel. Select the desired MIDI input and MIDI output device appropriate for your computer and make sure the MidiAxe™ Equipped guitar is connected as follows:

MidiAxe Guitar MIDI OUT ⇨ Computer MIDI IN

MidiAxe Guitar MIDI IN ⇨ Computer MIDI OUT

Initializing the Panel to the MidiAxe Settings

The next step in using the MidiAxe™ Utilities panel is to press the INITIALIZE button. This tells the MidiAxe™ Equipped guitar to upload all of its current settings to the panel including the software version information, serial numbers, and the current control settings for all of the programmable parameters.

Making Changes

Any of the controls may be changed, and each time a control is moved new SysEx commands are sent to the guitar and stored. This way if the power is disconnected during any utilities session the changes will be remembered.

Panel Controls

MIDI I/O Select

Use the pull down list control for each of the Input and Output devices to select the appropriate device connected to the MidiAxe™ Equipped guitar. Once the devices are selected, when the utility panel is shut down, they will be remembered the next time the panel is started.

MIDI Channel Selection

There are two basic MIDI transmission modes the MidiAxe™ system performs. The first is the single channel mode whereby all strings transmit on a single MIDI channel (3 way toggle switch in the middle or up position). The default channel programmed at the factory is channel 1. The second mode is multi-channel mode (also known as MIDI Mono mode), whereby each string is assigned an independent MIDI channel (3 way toggle switch in the down position). The default channels programmed at the factory for this mode are MIDI channels 1-6 corresponding to strings 1-6. Using the UP/DOWN buttons the user may change the MIDI channel for any of the strings in the respective modes.

Pitch Bend Range Select

When the 3 way MIDI mode toggle switch is in the middle or down position, the MidiAxe™ system sends pitch bend messages when a note is bent up or down. In this case, MIDI pitch bend messages are sent on the appropriate MIDI channel. If the MIDI mode is "single channel" the pitch bend message will be sent only on that corresponding MIDI channel. If the MIDI mode is multi-channel, then the pitch bend message will be sent on all 6 MIDI channels. The pitch bend range refers to how many semitones of synth pitch bend correspond to a full-scale pitch bend coming from the guitar. It is essential, for normal operation, that the guitar's pitch bend range corresponds to the synth's pitch bend range. By default most synths are set to +/- 2 semitones of pitch bend range for the full scale range of the instrument pitch bend. This is why the MidiAxe™ system is shipped from the factory set to this +/- 2 semitone range. The user may increase or decrease the pitch bend range by pressing the UP/DOWN buttons.

> *NOTE: The MidiAxe™ system will automatically send "PITCH BEND GAIN" information to any synth connected to the guitar when the "OCTAVE" switch is moved to any position. This may be a quick way to make sure the synth is tracking the pitch bend range correctly. Beware however that not all synths respond to this message, and you may have to resort to manually programming the pitch bend range on the synth.*

Velocity Curve Select

The velocity curve controls how "punchy" the synth sound is relative to how the user picks or plucks the string with his or her finger or pick. The MidiAxe™ system is shipped from the factory with a "hot" velocity curve profile that we have found to be the most universally preferred velocity mapping for most people. However some users may prefer a more "linear" feel to this velocity profile. There are 3 curves selectable with the curve 1 corresponding to the most "linear" and curve 3 corresponding to the most "compressed" or non-lin-

ear response to plucking the strings. Note that the "attack" profile of a synthesized sound varies widely with manufactures and patch settings and this enters into the velocity mapping perception.

String Sensitivity

In addition to the global velocity setting, each individual string sensitivity can be adjusted to suit individual tastes for picking hardness, etc. This is optimally adjusted to 100% for each string by default, but each string can be set accordingly. While adjusting the string setting, the user may view the signal strength on the VU meter panel.

Synth Volume

On the bottom of the panel there is a Synth Volume setting VU meter which provides for an easy way to see if the MidiAxe™ System is connected properly to the panel and messages are being transmitting and received. By moving the Synth Volume Pot on the guitar the bar graph should vary smoothly from 0% to 100%.

VU Meters

The VU meter portion of the panel shows the relative loudness of each string as a user plucks it. This isn't the actual signal value, but rather the MIDI velocity that is shown on the VU meter. In single channel mode, only one VU meter bar (bottom one) will be active for any of the strings. In multi-channel mode each of the string's velocity values will cause the corresponding VU meter bar to show signal strength (velocity).

Initialize Button and Version Status

As described above in the Panel Operation summary, the INITIALIZE button is pressed to initialize the panel to the setting of the MidiAxe™ system once the guitar has been connected properly. On the lower right hand portion of the screen, firmware version number, software version number, guitar serial number, and MidiAxe™ circuit board serial number are displayed. For software updates, the "software" version is the number to the left of the "/" character on the version status panel.

Tuner

A "guitar tuner" utility is provided that allows the user to tune the guitar via the MidiAxe™ Utilities panel. This tuner uses pitch bend messages to signal tuning information. Once the Tuner button is pressed, a small LED panel is presented with a Green LED in the center and RED LED's to the right and left of the center Green LED. A letter note also lets the user know what is the closest chromatic note being played. The user should adjust the pitch (using the guitar tuning keys) until the corresponding chromatic note is correct and the Green LED is showing. Note that heavy picking temporarily causes a slightly sharp tuning, so using a lighter picking stroke during tuning will result in a more "in-tune" guitar.

Restore Defaults Button

The Restore Defaults button allows a user to set all of the MidiAxe™ system parameters back to the original manufactured state.

Upgrade Button

The Upgrade button is used to update the operating system software for the MidiAxe™ Equipped guitar. When the button is pressed a dialog menu is pre-

sented and a specially coded software file is selected for download to the guitar. This is a special SysEx file (.syx) and can be downloaded from the MidiAxe™ website (www.midiaxe.com). Use of any other .syx file will cause overwriting of the internal MidiAxe program memories and should never be attempted. If this should happen, use the Recovery button and then Upgrade with the appropriate software SysEx file. The software upgrade takes a couple of minutes to complete and the user should never remove power during this process.

Recovery Button

The Recovery button should only be used as a result of a corruption of the MidiAxe™ system memory. In this case, this button is used to put the MidiAxe™ system into a known state prior to upgrading the software as a way to restore the internal memory of the system. Normally this is only used by the factory to set up the MidiAxe™ system the first time, and would not be a control frequently used by a user. It is only provided as a fail safe way to recover a crashed system should that occur.

SYSEX Specification

The user may communicate with the MIDIFly for the purposes of upgrading software and modifying the user settings. This section will set forth the details for these functions.

Software Upgrade

The software upgrade feature is accomplished by sending a series of Sysex messages to the MIDIFly. The messages are contained in a single file that can be downloaded from the MIDIFly website. The software that sends these messages must insert a delay of at least 150ms(milliseconds) between each message.

Changes to User Settings

The MIDIFly comes programmed with default settings that are optimal for a wide range of users. Through the use of Sysex messages the user may modify these settings. The default settings may be restored at any time through a single command.

The SYSEX Details

All values are expressed in hexidecimal format, indicated by '0x' preceding an 8 bit value (1 byte). Each Sysex message must have the following preamble (first 4 bytes).

Byte 0:	0xF0	Sysex Status
Byte 1:	0x00	Manufacturer's ID
Byte 2:	0x01	Manufacturer's ID
Byte 3:	0x25	Manufacturer's ID

SINGLE CHANNEL MODE, Channel number select

Byte 4:	0x27	
Byte 5:	0x00	
Byte 6:	0x00	
Byte 7:	0x00	
Byte 8:	0x00	
Byte 9:	0x00	
Byte 10:	0x01	

Byte 11:	0x00	
Byte 12:	0x00	
Byte 13:	0x00	
Byte 14:	0x0A	
Byte 15:	0x03	
Byte 16:	0x02	
Byte 17:	0x00	
Byte 18:	0x00	
Byte 19:	0x00	
Byte 20:	0x00	
Byte 21:	0x00	
Byte 22:	Channel #	Selected Channel Number (0x00...0x0F)
Byte 23:	0xF7	End of Sysex

MULTI CHANNEL MODE, Channel number select for String 1

Byte 4:	0x21	
Byte 5:	0x00	
Byte 6:	0x02	
Byte 7:	0x00	
Byte 8:	0x00	
Byte 9:	0x00	
Byte 10:	0x01	
Byte 11:	0x00	
Byte 12:	0x00	
Byte 13:	0x00	
Byte 14:	0x02	
Byte 15:	0x09	
Byte 16:	0x0D	
Byte 17:	0x00	
Byte 18:	Channel #	Selected Channel Number (0x00...0x0F)
Byte 19:	0x00	
Byte 20:	0x00	
Byte 21:	0x00	
Byte 22:	0x00	
Byte 23:	0xF7	End of Sysex

MIDI CONTROLLER NUMBERS

MULTI CHANNEL MODE, Channel number select for String 2

Byte 4:	0x22	
Byte 5:	0x00	
Byte 6:	0x02	
Byte 7:	0x00	
Byte 8:	0x00	
Byte 9:	0x00	
Byte 10:	0x01	
Byte 11:	0x00	
Byte 12:	0x00	
Byte 13:	0x00	
Byte 14:	0x00	
Byte 15:	0x09	
Byte 16:	0x0D	
Byte 17:	0x00	
Byte 18:	Channel #	Selected Channel Number (0x00...0x0F)
Byte 19:	0x00	
Byte 20:	0x00	
Byte 21:	0x00	
Byte 22:	0x00	
Byte 23:	0xF7	End of Sysex

MULTI CHANNEL MODE, Channel number select for String 3

Byte 4:	0x23	
Byte 5:	0x00	
Byte 6:	0x01	
Byte 7:	0x00	
Byte 8:	0x00	
Byte 9:	0x00	
Byte 10:	0x01	
Byte 11:	0x00	
Byte 12:	0x00	
Byte 13:	0x00	
Byte 14:	0x02	
Byte 15:	0x09	
Byte 16:	0x0D	
Byte 17:	0x00	
Byte 18:	Channel #	Selected Channel Number (0x00...0x0F)
Byte 19:	0x00	
Byte 20:	0x00	
Byte 21:	0x00	
Byte 22:	0x00	
Byte 23:	0xF7	End of Sysex

MULTI CHANNEL MODE, Channel number select for String 4

Byte 4:	0x24
Byte 5:	0x00
Byte 6:	0x01
Byte 7:	0x00
Byte 8:	0x00
Byte 9:	0x00
Byte 10:	0x01
Byte 11:	0x00
Byte 12:	0x00
Byte 13:	0x00
Byte 14:	0x00
Byte 15:	0x09
Byte 16:	0x0D
Byte 17:	0x00
Byte 18:	Channel # Selected Channel Number (0x00...0x0F)
Byte 19:	0x00
Byte 20:	0x00
Byte 21:	0x00
Byte 22:	0x00
Byte 23:	0xF7 End of Sysex

MULTI CHANNEL MODE, Channel number select for String 5

Byte 4:	0x25
Byte 5:	0x00
Byte 6:	0x00
Byte 7:	0x00
Byte 8:	0x00
Byte 9:	0x00
Byte 10:	0x01
Byte 11:	0x00
Byte 12:	0x00
Byte 13:	0x00
Byte 14:	0x02
Byte 15:	0x09
Byte 16:	0x0D
Byte 17:	0x00
Byte 18:	Channel # Selected Channel Number (0x00...0x0F)
Byte 19:	0x00
Byte 20:	0x00
Byte 21:	0x00
Byte 22:	0x00
Byte 23:	0xF7 End of Sysex

MULTI CHANNEL MODE, Channel number select for String 6

Byte 4:	0x26
Byte 5:	0x00
Byte 6:	0x00
Byte 7:	0x00
Byte 8:	0x00
Byte 9:	0x00
Byte 10:	0x01
Byte 11:	0x00
Byte 12:	0x00
Byte 13:	0x00
Byte 14:	0x00
Byte 15:	0x09
Byte 16:	0x0D
Byte 17:	0x00
Byte 18:	Channel # Selected Channel Number (0x00...0x0F)
Byte 19:	0x00
Byte 20:	0x00
Byte 21:	0x00
Byte 22:	0x00
Byte 23:	0xF7 End of Sysex

STRING SENSITIVITY, for String 1 (16 bits, Range = 0...0x7fff)

Byte 4:	0x20
Byte 5:	0x00
Byte 6:	0x02
Byte 7:	0x00
Byte 8:	0x00
Byte 9:	0x00
Byte 10:	0x01
Byte 11:	0x00
Byte 12:	0x00
Byte 13:	0x00
Byte 14:	0x02
Byte 15:	0x09
Byte 16:	0x0A

Byte 17:	DATA BITS (15...12) in lower nibble (0x00...0x07)
Byte 18:	DATA BITS (11...8) in lower nibble (0x00...0x0F)
Byte 19:	DATA BITS (7...4) in lower nibble (0x00...0x0F)
Byte 20:	DATA BITS (3...0) in lower nibble (0x00...0x0F)
Byte 21:	0x00
Byte 22:	0x00
Byte 23:	0xF7 End of Sysex

STRING SENSITIVITY, for String 2 (16 bits, Range = 0...0x7fff)

Byte 4:	0x20
Byte 5:	0x00
Byte 6:	0x02
Byte 7:	0x00
Byte 8:	0x00
Byte 9:	0x00
Byte 10:	0x01
Byte 11:	0x00
Byte 12:	0x00
Byte 13:	0x00
Byte 14:	0x00
Byte 15:	0x09
Byte 16:	0x0A
Byte 17:	DATA BITS (15...12) in lower nibble (0x00...0x07)
Byte 18:	DATA BITS (11...8) in lower nibble (0x00...0x0F)
Byte 19:	DATA BITS (7...4) in lower nibble (0x00...0x0F)
Byte 20:	DATA BITS (3...0) in lower nibble (0x00...0x0F)
Byte 21:	0x00
Byte 22:	0x00
Byte 23:	0xF7 End of Sysex

STRING SENSITIVITY, for String 3 (16 bits, Range = 0...0x7fff)

Byte 4:	0x20
Byte 5:	0x00
Byte 6:	0x01
Byte 7:	0x00
Byte 8:	0x00
Byte 9:	0x00
Byte 10:	0x01
Byte 11:	0x00
Byte 12:	0x00
Byte 13:	0x00
Byte 14:	0x02
Byte 15:	0x09
Byte 16:	0x0A
Byte 17:	DATA BITS (15...12) in lower nibble (0x00...0x07)
Byte 18:	DATA BITS (11...8) in lower nibble (0x00...0x0F)
Byte 19:	DATA BITS (7...4) in lower nibble (0x00...0x0F)
Byte 20:	DATA BITS (3...0) in lower nibble (0x00...0x0F)
Byte 21:	0x00
Byte 22:	0x00
Byte 23:	0xF7 End of Sysex

STRING SENSITIVITY, for String 4 (16 bits, Range = 0...0x7fff)

Byte 4:	0x20
Byte 5:	0x00
Byte 6:	0x01
Byte 7:	0x00
Byte 8:	0x00
Byte 9:	0x00
Byte 10:	0x01
Byte 11:	0x00
Byte 12:	0x00
Byte 13:	0x00
Byte 14:	0x00
Byte 15:	0x09
Byte 16:	0x0A
Byte 17:	DATA BITS (15...12) in lower nibble (0x00...0x07)
Byte 18:	DATA BITS (11...8) in lower nibble (0x00...0x0F)
Byte 19:	DATA BITS (7...4) in lower nibble (0x00...0x0F)
Byte 20:	DATA BITS (3...0) in lower nibble (0x00...0x0F)
Byte 21:	0x00
Byte 22:	0x00
Byte 23:	0xF7 End of Sysex

STRING SENSITIVITY, for String 5 (16 bits, Range = 0...0x7fff)

Byte 4:	0x20
Byte 5:	0x00
Byte 6:	0x00

Byte 7:   0x00
Byte 8:   0x00
Byte 9:   0x00
Byte 10:   0x01
Byte 11:   0x00
Byte 12:   0x00
Byte 13:   0x00
Byte 14:   0x02
Byte 15:   0x09
Byte 16:   0x0A
Byte 17:   DATA BITS (15...12) in lower nibble (0x00...0x07)
Byte 18:   DATA BITS (11...8) in lower nibble (0x00...0x0F)
Byte 19:   DATA BITS (7...4) in lower nibble (0x00...0x0F)
Byte 20:   DATA BITS (3...0) in lower nibble (0x00...0x0F)
Byte 21:   0x00
Byte 22:   0x00
Byte 23:   0xF7   End of Sysex

STRING SENSITIVITY, for String 6 (16 bits, Range = 0...0x7fff)

Byte 4:   0x20
Byte 5:   0x00
Byte 6:   0x00
Byte 7:   0x00
Byte 8:   0x00
Byte 9:   0x00
Byte 10:   0x01
Byte 11:   0x00
Byte 12:   0x00
Byte 13:   0x00
Byte 14:   0x00
Byte 15:   0x09
Byte 16:   0x0A
Byte 17:   DATA BITS (15...12) in lower nibble (0x00...0x07)
Byte 18:   DATA BITS (11...8) in lower nibble (0x00...0x0F)
Byte 19:   DATA BITS (7...4) in lower nibble (0x00...0x0F)
Byte 20:   DATA BITS (3...0) in lower nibble (0x00...0x0F)
Byte 21:   0x00
Byte 22:   0x00
Byte 23:   0xF7   End of Sysex

PITCH BEND RANGE Message 1
(Consists of 3 messages, all 3 must be sent) (Range = 0...6)

Byte 4:   0x20
Byte 5:   0x00
Byte 6:   0x00
Byte 7:   0x00
Byte 8:   0x00
Byte 9:   0x00
Byte 10:   0x01
Byte 11:   0x00
Byte 12:   0x00
Byte 13:   0x00
Byte 14:   0x0A
Byte 15:   0x00
Byte 16:   0x0D
Byte 17:   0x00
Byte 18:   0x00
Byte 19:   0x00
Byte 20:   0x00
Byte 21:   0x00
Byte 22:   range value (0x00...0x06)
Byte 23:   0xF7   End of Sysex

PITCH BEND RANGE Message 2
(Consists of 3 messages, all 3 must be sent) (Range = 0...6)

Byte 4:   0x20
Byte 5:   0x00
Byte 6:   0x01
Byte 7:   0x00
Byte 8:   0x00
Byte 9:   0x00
Byte 10:   0x01
Byte 11:   0x00
Byte 12:   0x00
Byte 13:   0x00
Byte 14:   0x0A
Byte 15:   0x00
Byte 16:   0x0D
Byte 17:   0x00
Byte 18:   0x00
Byte 19:   0x00

Byte 20:   0x00
Byte 21:   0x00
Byte 22:   range value (0x00...0x06)
Byte 23:   0xF7   End of Sysex

PITCH BEND RANGE Message 3
(Consists of 3 messages, all 3 must be sent) (Range = 0...6)

Byte 4:   0x20
Byte 5:   0x00
Byte 6:   0x02
Byte 7:   0x00
Byte 8:   0x00
Byte 9:   0x00
Byte 10:   0x01
Byte 11:   0x00
Byte 12:   0x00
Byte 13:   0x00
Byte 14:   0x0A
Byte 15:   0x00
Byte 16:   0x0D
Byte 17:   0x00
Byte 18:   0x00
Byte 19:   0x00
Byte 20:   0x00
Byte 21:   0x00
Byte 22:   range value (0x00...0x06)
Byte 23:   0xF7   End of Sysex

VELOCITY CURVE (Selects 1 of 3 velocity mappings)
(Range = 0.2)

Byte 4:   0x20
Byte 5:   0x00
Byte 6:   0x00
Byte 7:   0x00
Byte 8:   0x00
Byte 9:   0x00
Byte 10:   0x01
Byte 11:   0x00
Byte 12:   0x00
Byte 13:   0x00
Byte 14:   0x0A
Byte 15:   0x00
Byte 16:   0x0C
Byte 17:   0x00
Byte 18:   0x00
Byte 19:   0x00
Byte 20:   0x00
Byte 21:   0x00
Byte 22:   curve number (0x00...0x02)
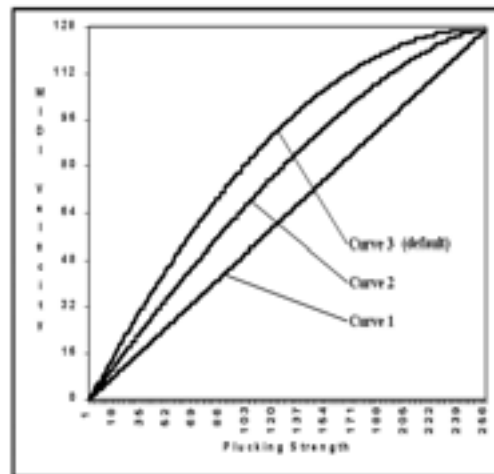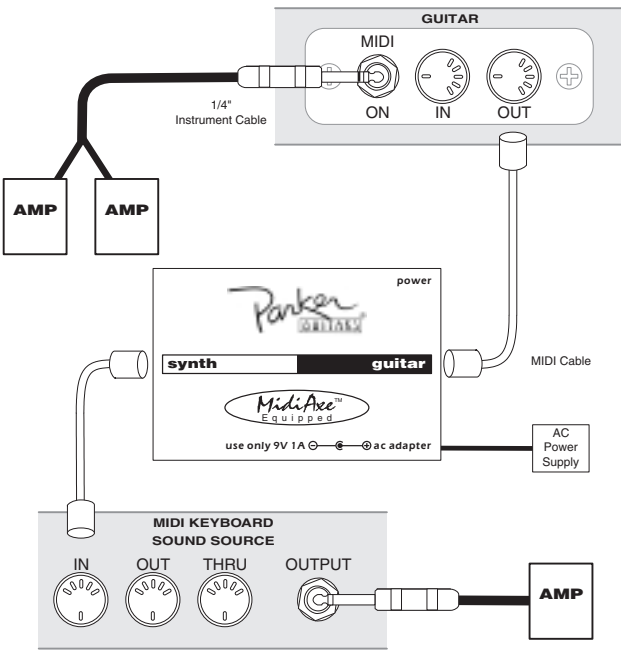Byte 23:   0xF7   End of Sysex

Table 3: Controller and Mode Changes (Status Bytes 176-191)
(adapted from "MIDI by the Numbers" by D. Valenti-Electronic Musician 2/88)
Updated 1995 By the MIDI Manufacturers Association

2nd Byte Value			Function	3rd Byte	
Binary	Hex	Dec		Value	Use
00000000 =	00 =	0	Bank Select	0-127	MSB
00000001 =	01 =	1	Modulation wheel	0-127	MSB
00000010 =	02 =	2	Breath control	0-127	MSB
00000011 =	03 =	3	Undefined	0-127	MSB
00000100 =	04 =	4	Foot controller	0-127	MSB
00000101 =	05 =	5	Portamento time	0-127	MSB
00000110 =	06 =	6	Data Entry	0-127	MSB
00000111 =	07 =	7	Channel Volume (formerly Main Volume)	0-127	MSB
00001000 =	08 =	8	Balance	0-127	MSB
00001001 =	09 =	9	Undefined	0-127	MSB
00001010 =	0A =	10	Pan	0-127	MSB
00001011 =	0B =	11	Expression Controller	0-127	MSB
00001100 =	0C =	12	Effect Control 1	0-127	MSB
00001101 =	0D =	13	Effect Control 2	0-127	MSB
00001110 =	0E =	14	Undefined	0-127	MSB
00001111 =	0F =	15	Undefined	0-127	MSB
00010000 =	10 =	16	General Purpose Controller #1	0-127	MSB
00010001 =	11 =	17	General Purpose Controller #2	0-127	MSB
00010010 =	12 =	18	General Purpose Controller #3	0-127	MSB
00010011 =	13 =	19	General Purpose Controller #4	0-127	MSB
00010100 =	14 =	20	Undefined	0-127	MSB
00010101 =	15 =	21	Undefined	0-127	MSB
00010110 =	16 =	22	Undefined	0-127	MSB
00010111 =	17 =	23	Undefined	0-127	MSB
00011000 =	18 =	24	Undefined	0-127	MSB
00011001 =	19 =	25	Undefined	0-127	MSB
00011010 =	1A =	26	Undefined	0-127	MSB
00011011 =	1B =	27	Undefined	0-127	MSB
00011100 =	1C =	28	Undefined	0-127	MSB
00011101 =	1D =	29	Undefined	0-127	MSB
00011110 =	1E =	30	Undefined	0-127	MSB
00011111 =	1F =	31	Undefined	0-127	MSB
00100000 =	20 =	32	Bank Select	0-127	LSB
00100001 =	21 =	33	Modulation wheel	0-127	LSB
00100010 =	22 =	34	Breath control	0-127	LSB
00100011 =	23 =	35	Undefined	0-127	LSB
00100100 =	24 =	36	Foot controller	0-127	LSB
00100101 =	25 =	37	Portamento time	0-127	LSB
00100110 =	26 =	38	Data entry	0-127	LSB
00100111 =	27 =	39	Channel Volume (formerly Main Volume)	0-127	LSB
00101000 =	28 =	40	Balance	0-127	LSB
00101001 =	29 =	41	Undefined	0-127	LSB
00101010 =	2A =	42	Pan	0-127	LSB
00101011 =	2B =	43	Expression Controller	0-127	LSB
00101100 =	2C =	44	Effect Control 1	0-127	LSB
00101101 =	2D =	45	Effect Control 2	0-127	LSB
00101110 =	2E =	46	Undefined	0-127	LSB
00101111 =	2F =	47	Undefined	0-127	LSB
00110000 =	30 =	48	General Purpose Controller #1	0-127	LSB
00110001 =	31 =	49	General Purpose Controller #2	0-127	LSB
00110010 =	32 =	50	General Purpose Controller #3	0-127	LSB
00110011 =	33 =	51	General Purpose Controller #4	0-127	LSB
00110100 =	34 =	52	Undefined	0-127	LSB
00110101 =	35 =	53	Undefined	0-127	LSB
00110110 =	36 =	54	Undefined	0-127	LSB
00110111 =	37 =	55	Undefined	0-127	LSB
00111000 =	38 =	56	Undefined	0-127	LSB
00111001 =	39 =	57	Undefined	0-127	LSB
00111010 =	3A =	58	Undefined	0-127	LSB
00111011 =	3B =	59	Undefined	0-127	LSB
00111100 =	3C =	60	Undefined	0-127	LSB
00111101 =	3D =	61	Undefined	0-127	LSB
00111110 =	3E =	62	Undefined	0-127	LSB
00111111 =	3F =	63	Undefined	0-127	LSB
01000000 =	40 =	64	Damper Pedal on/off (Sustain)	<63=off	>64=on
01000001 =	41 =	65	Portamento on/off	<63=off	>64=on
01000010 =	42 =	66	Sustenuto on/off	<63=off	>64=on
01000011 =	43 =	67	Soft Pedal on/off	<63=off	>64=on
01000100 =	44 =	68	Legato Footswitch	<63=off	>64=on
01000101 =	45 =	69	Hold 2	<63=off	>64=on
01000110 =	46 =	70	Sound Controller 1 (Sound Variation)	0-127	LSB
01000111 =	47 =	71	Sound Controller 2 (Timbre)	0-127	LSB
01001000 =	48 =	72	Sound Controller 3 (Release Time)	0-127	LSB
01001001 =	49 =	73	Sound Controller 4 (Attack Time)	0-127	LSB
01001010 =	4A =	74	Sound Controller 5 (Brightness)	0-127	LSB
01001011 =	4B =	75	Sound Controller 6	0-127	LSB
01001100 =	4C =	76	Sound Controller 7	0-127	LSB
01001101 =	4D =	77	Sound Controller 8	0-127	LSB
01001110 =	4E =	78	Sound Controller 9	0-127	LSB
01001111 =	4F =	79	Sound Controller 10	0-127	LSB
01010000 =	50 =	80	General Purpose Controller #5	0-127	LSB
01010001 =	51 =	81	General Purpose Controller #6	0-127	LSB
01010010 =	52 =	82	General Purpose Controller #7	0-127	LSB
01010011 =	53 =	83	General Purpose Controller #8	0-127	LSB

2nd Byte Value			Function	3rd Byte	
Binary	Hex	Dec		Value	Use
01010100 =	54 =	84	Portamento Control	0-127	Source Note
01010101 =	55 =	85	Undefined	0-127	LSB
01010110 =	56 =	86	Undefined	0-127	LSB
01010111 =	57 =	87	Undefined	0-127	LSB
01011000 =	58 =	88	Undefined	0-127	LSB
01011001 =	59 =	89	Undefined	0-127	LSB
01011010 =	5A =	90	Undefined	0-127	LSB
01011011 =	5B =	91	Effects 1 Depth	0-127	LSB
01011100 =	5C =	92	Effects 2 Depth	0-127	LSB
01011101 =	5D =	93	Effects 3 Depth	0-127	LSB
01011110 =	5E =	94	Effects 4 Depth	0-127	LSB
01011111 =	5F =	95	Effects 5 Depth	0-127	LSB
01100000 =	60 =	96	Data entry +1	N/A	
01100001 =	61 =	97	Data entry -1	N/A	
01100010 =	62 =	98	Non-Registered Parameter Number LSB	0-127	LSB
01100011 =	63 =	99	Non-Registered Parameter Number MSB	0-127	MSB
01100100 =	64 =	100	Registered Parameter Number LSB	0-127	LSB
01100101 =	65 =	101	Registered Parameter Number MSB	0-127	MSB
01100110 =	66 =	102	Undefined	?	
01100111 =	67 =	103	Undefined	?	
01101000 =	68 =	104	Undefined	?	
01101001 =	69 =	105	Undefined	?	
01101010 =	6A =	106	Undefined	?	
01101011 =	6B =	107	Undefined	?	
01101100 =	6C =	108	Undefined	?	
01101101 =	6D =	109	Undefined	?	
01101110 =	6E =	110	Undefined	?	
01101111 =	6F =	111	Undefined	?	
01110000 =	70 =	112	Undefined	?	
01110001 =	71 =	113	Undefined	?	
01110010 =	72 =	114	Undefined	?	
01110011 =	73 =	115	Undefined	?	
01110100 =	74 =	116	Undefined	?	
01110101 =	75 =	117	Undefined	?	
01110110 =	76 =	118	Undefined	?	
01110111 =	77 =	119	Undefined	?	
01111000 =	78 =	120	All Sound Off	0	
01111001 =	79 =	121	Reset All Controllers	0	
01111010 =	7A =	122	Local Control on/off	0 = off	127 = on
01111011 =	7B =	123	All Notes off	0	
01111100 =	7C=	124	Omni Mode off (+ all notes off)	0	
01111101 =	7D=	125	Omni Mode on (+ all notes off)	0	
01111110 =	7E =	126	Poly Mode on/off (+ all notes off)	*	
01111111 =	7F=	127	Poly Mode on (incl mono=off +all notes off)	0	

*NOTE: This equals the number of channels, or zero if the number of channels equals the number of voices in the receiver.

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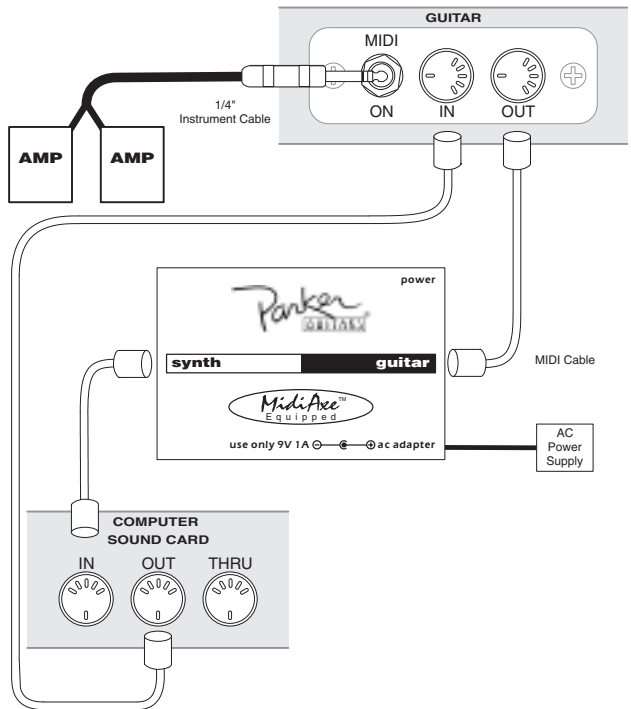
3 - Using BOTH a MIDI Sound Source and a Computer

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