AX 100 MKII

AXON AX 100 MKII
English Manual
Version 2.0 | January 2008

CE Declaration

We:

TerraTec Electronic GmbH, Herrenpfad 38, D-41334 Nettetal, Germany

hereby declare that the product:

AXON AX 100 MKII,

to which this declaration refers is in compliance with the following standards or standardising documents:

EN 55022, EN 55024

The following are the stipulated operating and environmental conditions for said compliance:

residential, business and commercial environments and small-company environments.

This declaration is based on:

Test report(s) of the EMC testing laboratory

Contents

Safety information
Please ensure that analogue devices are turned off before plugging them in. This will protect you from any possible—albeit weak—electrical shocks, as well as protecting your speakers and your hearing from sudden peaks.

Congratulations!

You've purchased the AXON AX 100 MKII, the world's fastest and most powerful guitar-to-MIDI converter available on the market. The AXON AX 100 MKII is an enhanced development of the NGC 77, which had set standards for innovative technology and had become standard equipment for many professional guitarists, including John McLaughlin. Thanks to its neural network, the AXON AX 100 MKII is able to determine the precise pitch of a note the instant it is picked, whereas other devices require several oscillations of the string for analysis. The early recognition of transients lets the AXON simultaneously determine pitch, amplitude, and even the location at which the string was picked—an unparalleled ability to date. This is due to the AXON's unusual splitting options. For example, you can use a string split to divide the strings of your guitar into two zones, each with its own sound properties. Or use a fret split to divide the fingerboard of your guitar into two separate playing zones. Pick splits let you divide the picking area of the guitar into up to three independent sound zones that you can select instantly by changing your picking position. You can achieve impressive effects with the pick control function, which lets you control modulation effects and others with your picking position. Special effects such as COMMON (bypass), SEPARATE (hold), LAYER (ensemble/doubling) and others can be applied with the multi-programmable hold switch. The implementation of a full-featured arpeggiator provides users further options to add expression to their playing with striking variations. Splits and effects can be combined, stored in up to 128 complex presets and recalled as needed. Another unique feature of the AXON AX 100 MKII is its unrestricted support for both acoustic guitars and basses with piezo hex pickups. This opens the MIDI world to bass players and classical guitarists that are looking for new, contemporary forms of expression. The internal soundboard upgrades the AXON AX 100 MKII to a professional guitar synthesizer for live use supporting ambitious musicians with over 500 excellent sounds, including 10 drum kits. The AXON AX 100 MKII system is fully MIDI compatible, and also features an editable drum sequencer.

Scope of delivery

Start by making sure that the contents of the package are complete.

The AXON AX 100 MKII package should contain the following items:

- 1 AXON AX 100 MKII
- 1 MIDI cable, 1.5m
- 1 footswitch for hold and chain function
- 1 network adapter
- CD with Editor software
- DVD with AXON workshop, interviews and installation instructions
- 1 service request form
- 1 registration card with the serial number
- This manual

Please fill out and return the registration card enclosed in the package to us at your earliest convenience or register online at **www.terratec.net/register.htm**. This is important for support and hotline services.

Optional accessories

The following products are available separately:

- PU 100 interface (pickup) for guitars with steel strings (available in Spring 2008)
- AIX 103 interface (pickup) for 4, 5 and 6-string bass guitars with steel strings
- AXK 100 13-pin cable (5m) to connect the pickup to the AX 100 MKII

QuickStart guide — for those of you can't wait

Connect your guitar to the AXON AX 100 MKII. If your guitar is equipped with one of the optional interfaces (PU 100, AIX 103), use the 13-pin cable (AXK 100) to do so. The socket at the left of the front panel labelled GUITAR INPUT is the one you need.

If you are using an external MIDI instrument for audio output, connect the MIDI OUT of the AXON to the MIDI IN of the instrument. You can skip this step if you intend to use the internal soundboard, of course.

Now connect the AXON AX 100 MKII to your mixer or amplifier using the SOUNDBOARD RIGHT / LEFT ports on the rear panel. If you're using an external sound module, ensure that the optional sound module is connected to the mixer or amplifier.

Switch the device on now—but first, set the volume of your amplifier to zero to prevent possible peaks from damaging your speakers and eardrums.

You're almost finished now. You should check a few basic settings before getting started, however. Press the GLOBAL button. BASIC CHANNEL will now appear on the display. It should have the value 1. If not, change it using the VALUE + and VALUE - buttons.

Press the PARAMETER + button to navigate to the next menu item, the HOLD CHANNEL. It should have the value 11. (At any rate, the value should not be lower than 7. Refer to page **19** for more information)

Press PARAMETER + again for the SEQ CHANNEL. Ensure that it is set to 10.

We will skip over the next three settings for Sequencer Port and Pitchbend—for more information on these, refer to page **19**. The next important one is LOCAL MODE, which you can access by pressing the PARAMETER + button. It should be set to ON if you intend to address the internal soundboard of the AXON AX 100 MKII directly, or if the generated MIDI data are to be sent to the MIDI OUT. You can disable local mode if you would like to control the AXON using a sequencer or MIDI recording software. The AXON AX 100 MKII then behaves like any other external sound module.

The next item is the TUNE BASE. The AXON AX 100 MKII is preset to a reference pitch of 440 Hz, which is indicated on the display by a "0". If you would like to play together with other, hard-to-tune instruments (such as the piano), you can adjust your tuning in cent increments.

The next item to check is the type of instrument used. Press the PARAMETER + button again and GUITAR NO will appear on the display. Up to 8 presets for different instruments can be stored here.

Press ENTER to open the submenu and select the instrument you will be using from the available instruments: BASS, GUITAR, VIOLIN and CELLO.

Press PARAMETER + to open the selection menu for the pickup you will be using. MAGNETIC is selected by default. If you are going to be using an instrument with a piezo pickup, change this setting to PIEZO.

Check the setting by playing the connected guitar. If you hear so-called double triggers (i.e. two notes hit in rapid succession) even though you have only hit the string once, you should adjust the input sensitivity of the AXON to your personal playing style and hardware. To do so, press the PARAMETER + button until you reach the SENSE menu item.

Begin with the low E string and adjust the value at the bottom right of the display using the VALUE +/- buttons. Use PARAMETER + to move on to the remaining 5 strings.

Finished! We can deal with the other parameters later—the AXON has been preconfigured at the factory to let you get started with a minimum of hassle.

Editing preset sounds

Ensure that the AXON is in Preset mode (Preset LED lit on the front panel). This is automatically the case when you switch the device on and none of the other modes (GLOBAL, UTILITY or CHAIN) are selected.

The top half of the display shows the name of the currently active preset, with the number of the preset to the right.

Use the VALUE +/- buttons or the UP/DOWN buttons of the guitar interface to step through the presets 1-256. Presets 1-128 are reserved for the user and can be edited. 129-256 are fixed factory presets. By default, these presets have been copied to the programmable user area (1-128) to ensure that it contains playable parameter settings, but they can be overwritten as needed, of course.

Once you have familiarised yourself with them, you can try modifying one of the existing presets:

1. Use the VALUE +/- buttons to select preset 1, "Grand Piano" (same as factory preset 129). You can also use the UP/DOWN buttons of the guitar interface to select the preset. Next, press the EDIT button.

2. Press ENTER to open the AXON's split zone area. Confirm the selected split zone with ENTER. Then, confirm the selected layer, likewise using the ENTER button.

3. You can now use the VALUE +/- buttons to select any INSTRUMENT. The instruments are sorted logically according to groups. Using the PARAMETER button, you can move the cursor towards the left to the group and navigate through it using the VALUE +/- buttons in order to reach the desired sound more quickly.

4. Pressing the PARAMETER + button again takes you to additional settings for the preset; these are explained in detail later on in the manual. For example, you can use the VALUE +/- buttons to set the VOLUME parameter to the desired value.

5. You may also change the TRANSPOSE setting in the next parameter. This can be useful for a bass sound, for example. This parameter results in a semitone shift of the note from its standard tuning. Press the PARAMETER + button and set the value with the VALUE +/- buttons (+12 or -12 raises or lowers the pitch one octave).

6. Press the EXIT button three times to access the global preset area. We now want to give our modified preset a new name by pressing the PARAMETER + button five times, then the ENTER button. The cursor is now located on the "G" of the old preset name, "Grand Piano".

7. Use the VALUE +/- buttons to change the letter at the cursor position. Think of a new name for your preset and set the first letter. Use the PARAMETER +/- buttons to move the cursor one position to the left or right. Repeat the process for the other letters. If the new name is shorter than the old one, delete the remaining letters with the EDIT button.

8. Press the EXIT button twice to exit preset editing mode. The top half of the AXON display will now be flashing. This indicates that you have changed the parameters and that you still need to confirm the changes to store them permanently. Now press the STORE button.

You can now select a slot in which to store the new preset. Either overwrite the preset or store it in any of the slots within the user range (1-128). Now press the ENTER to copy the preset to the selected location and store it there.

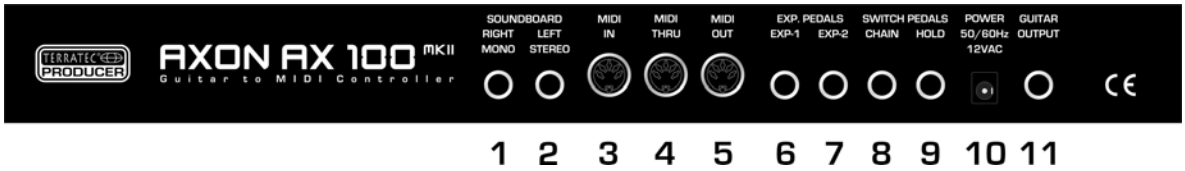
Connectors and controls

Front panel:

1. Socket for the 13-pin AXON AXK 100 cable (not included) to connect guitars with hexaphonic pickup systems (e.g. AXON PU 100 or AIX 101/103)
2. HEADPHONE OUTPUT: Stereo output (1/4" jack). Connect stereo headphones here to monitor the internal soundboard.
3. HEADPHONE LEVEL: Adjust the volume of the headphone output (2) here.
4. DISPLAY CONTRAST: Contrast control for the LCD display
5. LCD display
6. GLOBAL: Button for opening the Global menu Use the GLOBAL button to access general system settings such as the MIDI channel, guitar settings, and the default values of all available MIDI controllers.
   When entering characters for preset names, use the GLOBAL button (A-Z) to change the current character to uppercase.
7. PRESET: Button for direct access to the Preset menu. The selected sound is shown on the display when in Preset mode. A guitar tuner can also be displayed.
   Use this button to insert spaces when entering characters for preset names. An LED next to the button signals the operating status of the device.
8. UTILITY: A variety of special functions are available while in Utility mode:
   - Sending of MIDI System Exclusive data (SysEx) for sharing presets and archiving.
   - Access to the pattern-oriented drum sequencer
   - When entering characters for preset names, use the UTILITY button (A-Z) to change the current character to lowercase.
9. STORE: Use the STORE button to copy and save preset data, arpeggiator patterns, drum patterns and chains to memory.
   When inserting characters for preset names or arpeggio patterns, all characters to the right of the current cursor position will be moved to the right by one place.
10. Use the CHAIN button to activate Chain mode and step through a programmed sequence of presets.
    When entering characters for preset names, use the CHAIN button (!...0...@) to change the current character to the first special character: '!'
11. The EDIT button...
    - Provides access to the various preset parameters when in Preset mode.
    - Adjusts the chain parameters in Chain mode.
    - When entering characters for preset names or arpeggio patterns, the EDIT (Delete) button deletes the current character and moves all subsequent characters to the left by one place, inserting a space at the end.

12. The PARAMETER buttons select...
    - The individual submenus in UTILITY and GLOBAL mode.
    - The individual parameters of the instrument in EDIT mode.
    - The PARAMETER buttons have no function in PRESET and CHAIN mode.
13. The VALUE + and – buttons raise or lower the current value in the display.
    - In Preset mode, they step through the presets.
    - In Edit mode, they change the value of the displayed parameter.
    - Alternatively, you can also use the UP / DOWN buttons of the optional guitar interface.
14. The ENTER button confirms store and copy actions and opens submenus. The presence of a submenu is indicated by the presence of 2-3 dots in the parameter name. Use the EXIT button to close any submenu.
15. The EXIT button closes submenus. Pressing the button repeatedly will always return you to Preset mode. Also use this button to cancel store or copy actions.
16. POWER ON/OFF switches the AC power of the AXON. The PRESET LED and the LCD are lit when the power is turned on.

Rear panel



1. SOUNDBOARD RIGHT (MONO): The sound signal is output in mono via this socket. The right stereo channel will be available from the socket next to it (2) when in use.
2. SOUNDBOARD LEFT (STEREO): The signal is available in stereo from this socket when using a stereo jack for the output. The left channel of the stereo signal is available here when using a mono jack.
3. MIDI IN: The AXON receives Program Change commands, as well as System Exclusive and controller data via this input. Alternatively, all incoming MIDI data can be sent directly to the soundboard with the LOCAL OFF global setting. This is the typical application in conjunction with a sequencer.
4. MIDI THRU: All data arriving at MIDI IN is available in unchanged form here.
5. MIDI OUT: All MIDI data generated by your AXON AX100 MKII are available here.
6. EXP. PEDALS, EXP1: An expression pedal may be connected here and assigned to a MIDI controller in the PRESET – EDIT- WHEEL CNTL – EXP1 menu. Volume, modulation and filter effects are especially suitable for use with expression pedals. As your AXON also supports NRPN/RPN (non-registered parameter number / registered parameter number) controllers, you can assign these pedals to the MIDI controllers #6 or #38 for an extremely versatile range of applications unparalleled in any other device of this category.
7. EXP. PEDALS, EXP2: Same function as EXP1
8. SWITCH PEDALS, CHAIN: A footswitch connected here lets you step through a pre-programmed set of presets while in Chain mode.
9. SWITCH PEDALS, HOLD: Connect the included footswitch here to activate one of the programmed hold modes such as COMMON, SEPARATE, LAYER, ARPEGGIATOR or CONTROL.
10. POWER: Connect the mains power adapter provided with the unit here.
11. GUITAR OUTPUT: The unmodified pickup signal of your guitar is available at this socket. To prevent hum when using the synthesiser and original guitar signal at the same time, you should always route the original guitar signal through the 13-pin cable and pick it up at this socket on the rear panel. The PU 100 and AIX101/103 interface has an input for the pickup signal of your guitar. Use the cable provided to connect the pickup output of your guitar to the input of the hexaphonic pickup.

The operating modes of the AXON AX 100 MKII

The many options of your AXON require a wide range of parameters that you can adjust to suit your requirements. The following explanation of the user interface will help you find your way around quickly.

For a clear overview, the operating functions of your AXON have been organised in four different modes or sections that can be selected using the buttons on the front panel. Each of these modes (GLOBAL, PRESET, UTILITY, CHAIN) contain a number of parameters that can be displayed using the PARAMETER +/- buttons after pressing the appropriate mode button.

Press the PARAMETER + button to switch to the next parameter. PARAMETER - returns you to the previous parameter. Change the values of the individual parameters using the VALUE +/- buttons, using VALUE + to raise the value and VALUE - to lower it. The VALUE +/- buttons feature an acceleration function to help ensure that you don't get a repetitive strain injury. You can accelerate the counting even more by pressing both buttons (+ and -) at the same time while counting up or down.

A number of parameters contain submenus with additional parameters. Dots at the end of the parameter name indicate the presence of a submenu. To open a submenu, press the ENTER button. Press the PARAMETER +/- buttons to access the various parameters within the submenu. The EXIT button will return the AXON to the original parameter. The EXIT button will also return the AXON to its default Preset mode.

Global Mode

The global parameters contain all higher-level parameters related to the MIDI channels, the instrument used, the reference tuning and input sensitivity of the individual strings. You should check a number of the global parameters before using your AXON for the first time to ensure its best possible interaction with your instrument.

Preset Mode

All of the parameters that your AXON needs for managing individual presets can be found here. Preset mode is the most extensive mode, with a wide range of split and effect settings. This is the mode that is active by default whenever you have not selected one of the other modes.

Utility Mode

This mode contains a wide range of settings for drum sequences. It also contains the functions for loading and storing settings via MIDI (SysEx), letting you manage and save the parameter settings of your AXON on your computer. It's easier using the included Editor, by the way. ;-)

Chain Mode

The Chain parameters let you define preset chains for easy access to presets sorted by style for live performances.

CAUTION: For greater ease of use, they are divided up a little differently in the Software Editor. The areas there are: Global, Presets, Arpeggiator/Sequencer, Chains, CC Defaults, MIDI Mapping and About.

The Computer Editor

The included Editor offers direct on-screen access to all parameters of the AXON AX 100 MKII. All you need is a computer (PC or Mac) that has a MIDI interface (generally an integral component of the soundcard) with an input and output.

Installation in Windows

- Insert the included AXON CD in your drive and wait for the autorun application to launch. If the autorun application on the CD does not launch automatically, start the application manually by double-clicking "Autorun.exe" in the root folder of the CD.
- Select your language, then "AXON Editor" in the following menu. The setup wizard will now appear.
- The wizard will now display its welcome message.
- The default destination for the installation is specified in the following window. If you prefer a different location, please click "Change".
- Click "Finish" to complete the installation.
- Launch the application at Start \ Programs \ TerraTec \ AXON AX 100 \ AX 100 Editor.

Installation in MAC OS X

On the CD, the image files are located at Editor\MAC:

- AXON_AX_100_MKII_Editor_PPC_Vx.x.x.dmg (G4/G5 OS 10.3)
- AXON_AX_100_MKII_Editor_Universal_Vx.x.x.dmg. (G4/G5/Intel OS 10.4 or higher)

Mount the correct image for your system by double-clicking and copy the program contained there to your programs folder.

The Editor can be launched at System\Programs when the installation is complete.

Connection

To work with the Editor, you must have a bidirectional connection between the AXON AX 100 MKII and a MIDI interface, i.e.:

- MIDI IN AXON to the MIDI OUT of your interface and
- MIDI OUT AXON to the MIDI IN of your interface.

Once you have set up the connection, select the MIDI port of your computer to which the AXON is connected in the Editor under Global – "PC MIDI I/O devices" and click "Connect". A pop-up will appear and the box under AXON Connection will say "Connected to AX 100 MKII Version x.xx". The Editor is now ready to use, letting you remotely control all parameters of the AXON AX 100 MKII in real time and monitor the results.

General notes about operating the Editor

In most cases, the functions are identical to operation on the device. However, using a computer gives you access to additional options.

Global page - Load all settings / Save all settings

Using these buttons, you can save all the device's settings to the hard drive as a SysEx file (Save all settings) and restore them later (Load all settings). This is useful before a firmware update or can be used for general backup purposes.

Presets page – Get Preset / Store to

"Get Preset" activates the preset selected in the drop-down menu. "Store to" permanently saves the preset to one of the first 128 memory positions in the AXON AX 100 MKII. Select the number under which to save the preset in the drop-down menu to the right of the "Store to" button.

Preset page – Load from Disk / Save to Disk

To save individual presets to the hard drive, use the "Save to Disk" button. This generates a file with the ending .axp, which you can reload to the device using the "Load from Disk" button. This gives you a very convenient way to exchange presets you have created with other AXON users, for example.

Miscellaneous

- Functions that are not available due to the current setting are greyed out.
- Labels can change according to the setting, e.g. Pickcontrol / DynControl.

Firmware update

To update the firmware of the AX 100 MKII, proceed as follows:

1. Install the latest version of the Editors and save all settings to your computer.
2. Press the "PRESET" + "UTILITY" + "EDIT" buttons while switching on the AX 100 MKII. The following appears in the display:

3. The AX 100 MKII is now in update mode, and you can release the buttons. Wait until the following message appears.

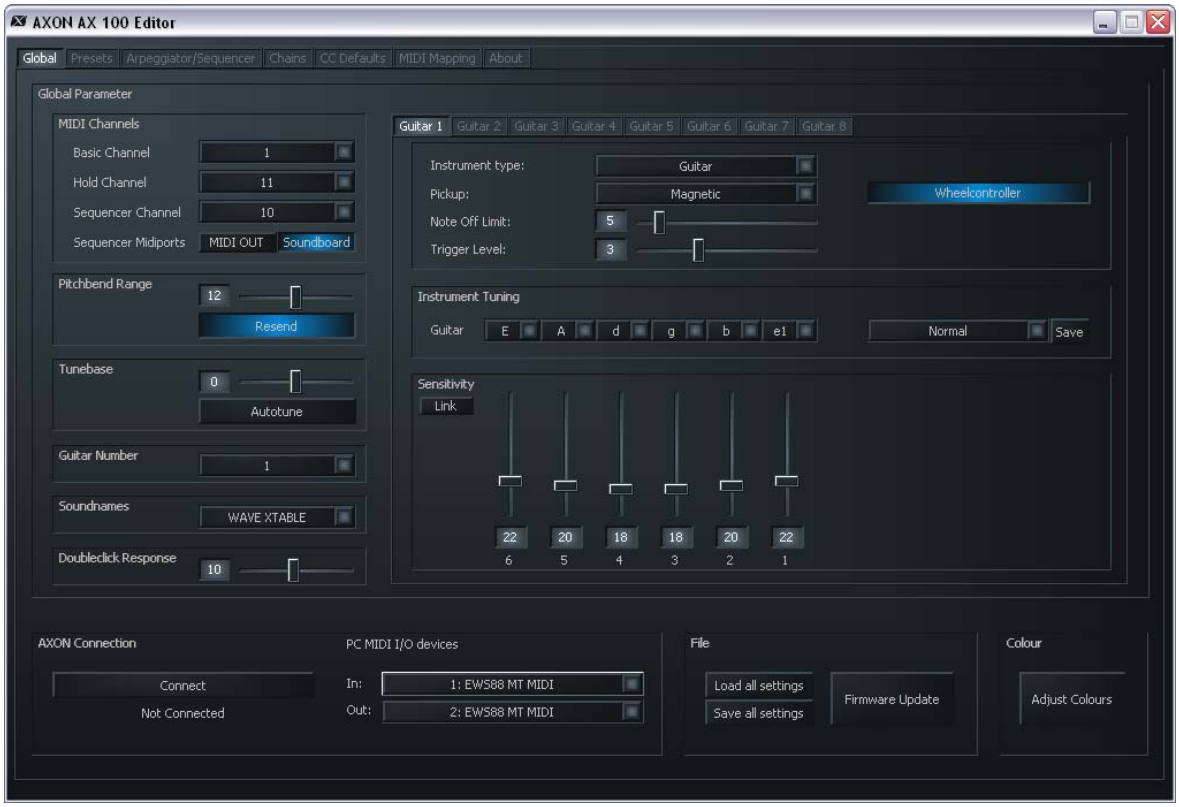
4. Start the AXON AX 100 Editor program on your computer.
5. Ensure that one of your computer's MIDI Out ports is connected to the AX 100 MKII. Select the corresponding "PC MIDI out device" on the Editor's "Global" page.
6. Click "Firmware Update". A dialogue window for selecting the file opens. Select the desired update file (a file with the ending .axu) and click "Open".
7. A prompt appears asking if you want to update the firmware in "SLOW Mode". Normally, this is not necessary and you can just click "No". However, if you have problems with the update, try it in SLOW Mode. In this transmission mode, the data are sent at a somewhat slower rate. **This applies only for the update on a PC.**
8. A progress bar appears in the AXON display.

9. Wait until the loading process is finished. The following appears in the AXON display:

10. Wait until the erasing process is finished. The following now appears in the AXON display:

11. Finally, the AXON is automatically restarted with the new firmware.
12. CAUTION: If this does not happen, you have to restart the AXON manually. However, be absolutely certain to wait until the progress bar is complete, as otherwise the memory module may not have been written correctly, which would result in total failure of the device. You can safely restart approximately 30 seconds after all 16 segments of the progress bar have been filled.

Global Mode



Global Parameters

The global parameters contain all higher-level parameters such as information related to the MIDI channels, the instrument used, the reference tuning and the input sensitivity of the individual strings. A number of settings can be set individually for each instrument that you will be using with the AXON. Check and adapt these settings as necessary before using it for the first time. This is essential to ensure that the AXON will work optimally with your instrument.

Global mode can be activated by pressing the GLOBAL button on the front panel of your AXON. The state is signalled by a red LED next to the GLOBAL button.

Basic Channel

Basic MIDI channel (1 – 16) Various options are available for sending the MIDI information generated by the AXON from the vibrations of your guitar strings to the sound module or MIDI instrument. Ideally, a MIDI channel is assigned to each string (see STRING MODE SEPARATE) This has the advantage of evaluating each string separately. For example, bending a string affects only that string's channel. Otherwise, bending would affect the pitches of the other strings being played at the same time, an effect that is generally undesirable. Use BASIC CHANNEL to specify the first of six MIDI channels. All other channels follow automatically in ascending order. If you select "1", for example, MIDI channels 1 to 6 will be reserved by your AXON. The value '5' would assign channels 5 to 10, and the value '11' the channels from 11 to 16. '1' is the default value.

Hold Channel

Hold MIDI channel (1 – 16) While BASIC CHANNEL reserves six MIDI channels for normal playing, the HOLD CHANNEL parameter reserves the first of six additional consecutive MIDI channels for Hold effects such as SEPARATE, LAYER and ARPEGGIO. It's important to ensure that the Basic and Hold channels do not overlap. Ensure that at least six MIDI channels are between the Basic and Hold channels. The default value for this parameter is 11, thus reserving the MIDI channels 11 to 16.

Sequencer Channel (SEQ CHANNEL)

MIDI channel for soundboard drum sequences (1 – 16) A separate MIDI channel is used for drum sequences. Use this parameter to select the channel. Please ensure that the SEQ CHANNEL does not conflict with the BASIC or HOLD channels and that you reserve a free MIDI channel for the drum sequencer. MIDI channel 10 is the default setting.

Sequencer MIDI Ports (SEQPORTS)

(MIDI OUT and/or Soundboard) Here, you can select the outputs to which to send the MIDI signal of the internal drum sequencer. You can choose between the MIDI Out on the rear side of the AXON and/or the internal soundboard.

Pitchbend Range (PBEND RANGE)

(OFF, 1 – 24) Bending and sliding are techniques frequently used by guitarists. Your AXON uses the MIDI pitchbend command for these effects. As with a keyboard pitch wheel, the pitch of the last note picked is modified without picking a new note. The value ranges must be adjusted to ensure that the sound module or a connected MIDI instrument reproduces the pitch changes accurately.

The displayed value indicates the maximum number of semitone steps that can be applied to a pitchbend. Set this value to 12 (one octave). For bass, we recommend setting the value to 24.

The value OFF disables pitchbend, triggering chromatic semitones when bending or sliding.

Resend Pitchbend Range (SND PBENDRG)

(ON/OFF) If your MIDI instrument supports separate pitchbend settings for each preset, you must set this parameter to ON. In this case, your AXON will send the required pitchbend settings to the MIDI instrument after every Program Change command. If your MIDI instrument stores the pitchbend range globally, set this value to OFF.

Local Mode

Local mode (ON/OFF)

ON: This is the internal default operating mode of your AXON. The string vibrations received via the 13-pin jack are converted to MIDI signals and sent to the built-in sound module and to the MIDI Out jack. Program Change commands received via MIDI IN permit programmed AXON presets to be accessed. permitting additional MIDI instruments to be controlled. You should choose this setting if you are not using a sequencer to control the AXON. That will usually be the case during live performances.

OFF: You can disable local mode if you would like to control the AXON using a sequencer or MIDI recording software. The integrated sound module of your AXON will now act as a conventional MIDI expander. However, it will no longer be possible to select AXON presets via MIDI IN. Naturally, you will still be able to select the presets of your AXON using the operating buttons. All MIDI data generated by your AXON while playing is available only via MIDI OUT. Connect the MIDI OUT of the sequencer to the MIDI IN of your AXON and activate the echo or monitor function of the sequencer. The sequencer will loop the incoming MIDI data through to MIDI OUT and send it to the internal sound module. Note that the sequencer is configured such that it transmits all MIDI data on the same channels on which it receives them.

Local mode is always set to ON when switching the AXON on. If you set this parameter to OFF, this setting will only be retained until you switch the device off.

Caution: This function is not available in the Software Editor, as the Editor functions in LOCAL ON mode only!

Tune Base

(-99 to +99) Unit: cent, corresponds to 1/100 semitone All MIDI notes generated by your AXON are based on a reference tuning of 440 Hz, plus or minus a deviation determined by this parameter. If you are playing with musicians using instruments that are difficult to tune, such as a piano, you can adjust your AXON to the situation. We recommend the following procedure when using a reference frequency other than 440 Hz: start by carefully tuning the open A string to the reference instrument by ear.

Next, press the ENTER button. "PICK THE OPEN A STRING" will now appear on the display.

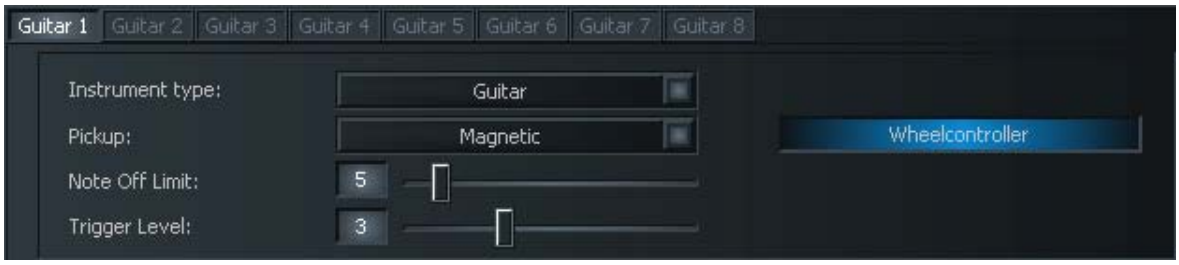
Pick the open A string. Your AXON will analyse the pitch and automatically set the tune base parameter to the correct value. If you already know the exact value, you can enter it manually using the VALUE +/- buttons, of course. Next, tune the remaining strings of your guitar with the integrated tuner of your AXON. If you are playing alone, set the parameter to 0.

Guitar Number (GUITAR NO)

AX 100 MKII Display

(1 to 8) So that your AXON works optimally with your guitar, you have to configure various basic settings pertaining to sensitivity and other parameters. These settings depend on the type and setup of your guitar. They can vary widely from one instrument to the next. However, the AXON stores up to eight sets of basic settings, making it unnecessary to configure the required parameter changes individually every time—simply choose a guitar preset number with the touch of a button.

Setting up the individual parameters is easy—simply press the ENTER button to step through the parameters and edit them. Use the PARAMETER +/- buttons to select individual functions. The VALUE +/- buttons adjust the actual values. Within these basic settings, your AXON provides a VU meter in the first line of the display. The positions of the bars correspond to the levels of the individual strings, varying depending on how hard you pick and the sensitivity settings of the individual strings. In the Software Editor, you can select the eight guitar presets for editing using the tabs. However, for the selection to be lasting, you have to use the "Guitar Number" selection box.



Instrument Type (INPUT TYP)

(GUITAR, BASS, VIOLIN, CELLO) Select the instrument you will be using from the available instruments. This is especially important for the assignment of the strings to the MIDI channels you specified.

Pickup

(MAGNETIC, PIEZO) Select the pickup system you are using here. MAGNETIC is the default mode, for example when using the AIX 101 guitar interface with its magnetic pickup. The PIEZO setting supports polyphonic piezo pickups. Piezo pickups are designed to reproduce the natural sound of hollow-body instruments as faithfully as possible and have been engineered especially for use with acoustic guitars. An important ad-

vantage for guitarists is that piezo pickups, which can be installed invisibly in the bridge of the instrument, can also be used on instruments with nylon strings such as classical guitars.

Note Off Limit

(2 – 30) Unlike a keyboard, which holds its notes until the key is released, a guitar string will sound until the note dies out naturally or the string is stopped. The duration of the note depends primarily on the type of guitar, how it is set up, and the type of strings used. Some guitars therefore sound percussive, while others have more sustain. This can be represented as an envelope curve in which the volume or amplitude values gradually decline to zero. By specifying a threshold value on this envelope, it becomes possible to control the duration of the note. Selecting a higher value will cause the MIDI Note Off command to be sent sooner, while lower values will result in greater sustain. The AXON can thus be matched optimally to the characteristics of your guitar.

Trigger Level

(0 to 9) Use this parameter to specify a threshold at which notes are to be triggered on your MIDI instrument to suit your playing technique. A low value will ensure that even a weak pick will trigger a "Note On" command. Conversely, a higher value will require a harder pick. Experiment with the values a bit to find your optimal setting.

Instrument Tuning (INPUT GUIT.TUNE)

(+/- 3 octaves) Because the AX 100 MKII is capable of transposing the MIDI sound output into any conceivable tuning, it needs to know how the connected instrument is tuned, as many parameters depend on the "real" tuning of the instrument. Therefore, in this menu item, configure the actual tuning for each string. The standard tuning is configured at the factory; if this is how your instrument is tuned, you do not have to make any changes here.

Using the Software Editor, you can load preset tunings and save the ones you have created. This saves a file with the ending .axt in the tuning directory in the Editor's program folder.

Sensitivity

Input sensitivity for guitar: E6 to E1 or bass: B6 to C1 (8 to 64) Here you can select the individual strings of your instrument using the PARAMETER +/- buttons and assign suitable values for the input sensitivity. A higher value means greater sensitivity. Please note that your AXON is very sensitive with regard to distortion—as are all electronic devices that process audio signals digitally. On the other hand, do not set the values of your AXON too low. It will usually be necessary to increase the sensitivity for the lighter strings to achieve a

well-balanced result. When using a bass, the AXON will assume that you are using a six-string bass for reasons of compatibility. If your bass has fewer strings, which will usually be the case, simply skip the parameters for the nonexistent strings.

The Link button in the Editor links all sliders, allowing you to move them all at once.

Wheel Controller (WHEELCNTRL)

Controller potentiometer on the pickup (ON/OFF) If your pickup does not have a potentiometer, please specify that here, as otherwise the AXON will not receive the correct values and will function incorrectly. This will only be the case with retrofitted accessory piezo pickups, however, as the AXON PU 100, AIX 101 and the 103 have such a potentiometer.

Pedal Sensitivity (PEDALSENS)

The AXON is compatible with virtually any expression pedal on the market. However, pedals do vary, and this menu item lets you set up the AXON AX 100 MKII to suit your pedal. First, select either EXP1 or EXP2 using the VALUE buttons. Press ENTER to open the submenu. Move the pedal to its minimum position and press ENTER. Next, move the pedal to its maximum position and press ENTER again. The AXON is now configured to your pedal.

This function is not available in the Software Editor.

CC Defaults

Controller reset values Using the various control options of the wheel and pick control functions requires a precise reset of the MIDI controller to its default values (i.e. after a preset change). This is generally the value 0, but there are exceptions. The soundboard expects the value 64(40h) as the default value for the controllers 71-74, as these controllers are used as offset. A wide range of free controllers are available that manufacturers can use as they see fit, so your AXON lets you set default values for all available controllers. Press ENTER to open the submenu.

The first line displays the controller and its number, the second line contains the default value in hexadecimal notation. The cursor is initially in the first row while you use the VALUE +/- buttons to display the desired controller. Use the PARAMETER + button to move the cursor to the second row and the VALUE +/- buttons to change the default value of the displayed controller. The settings will be stored in the AXON's memory. The table is already filled with default values. All controllers reserved according to the MIDI specification were given default values. Refer to the manual of your MIDI sound generator to set the value of the controller used to the value recommended by the manufacturer.

For ease of understanding, we have given this area its own page in the Software Editor:

MIDI Mapping

Program Change commands Commands received by your AXON on the current Basic Channel can be assigned to any AXON presets using this mapping table. Press the ENTER button.

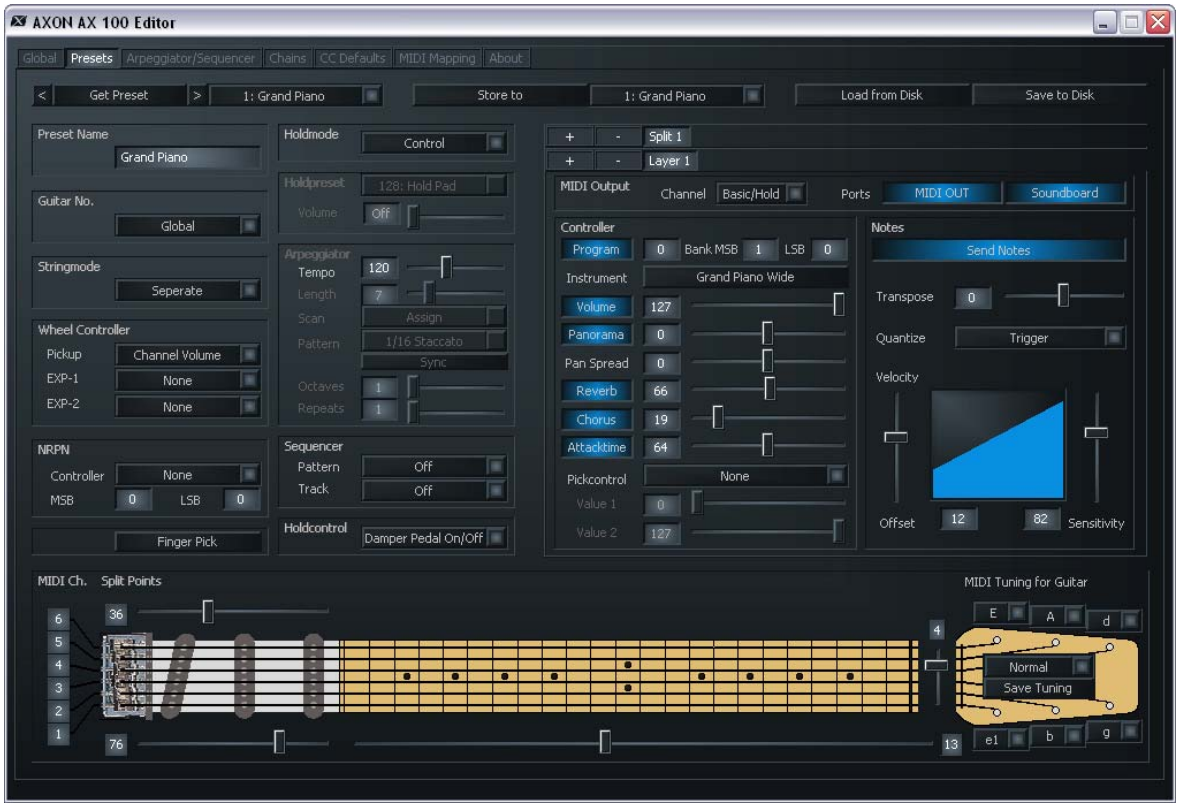
The first line of the display will show the program number that your AXON is receiving, the second line will show the associated preset to which you are changing. By default, a Program Change command will select the AXON preset with the same program number. To change this setting, use the PARAMETER +/- buttons to switch between the lines and the VALUE +/- buttons to change the values. Your entries will be sent to memory immediately and do not need to be saved manually. Use the EXIT button to exit this submenu, as always.

This also has its own page in the Editor:

Preset Mode

Preset mode is active by default whenever you have not selected one of the other modes. The device automatically returns to preset mode when exiting another mode. The status is indicated by a lit LED to the left of the PRESET button on the front panel. The top line of the display shows the preset's name and number; the bottom line shows a tuner and the basic setting of the instrument used (here, GM1 = guitar with magnetic pickup, preset number 1).

In the Software Editor, the preset area looks like this:



Preset Parameters

The preset parameters contain all of the settings that the AXON needs to manage a preset. A preset is a playing environment that you have defined which contains a wide range of playing and audio property settings that you can select at any time. You can choose from up to 128 complex programmable presets. The complexity of your presets is entirely up to you. For example, you can organise the strings of your guitar as 12 completely different split areas that can be combined freely. Countless effects and playing parameters can be assigned to each of the splits independently.

Selecting Presets

To navigate the presets, use the VALUE +/- buttons. You can also use the UP/DOWN buttons of the guitar interface or press the "Get Preset" button in the editor.

Guitar Tuner and Instrument

In its default setting (see Utility Mode, Display), the lower half of the display shows a guitar tuner with which you can monitor the correct tuning of your instrument. It is important for the guitar to be tuned within certain tolerances for the AXON to identify MIDI note values correctly. Tune each string until the line is located over the arrow in the middle of the scale. If the Tune Base parameter is set to 0, the middle arrow corresponds to a tuning calibration of 440 Hz. If you need to tune to a different reference value than 440 Hz—out of consideration to another musician, for example—you can also tune the AXON to your guitar via Tune Base (see Global Parameters). The middle position will then correspond to the custom value (assuming you reach an agreement).

The abbreviation at the bottom right shows which instrument, with which pickup, is selected for this preset, and has the following meaning:

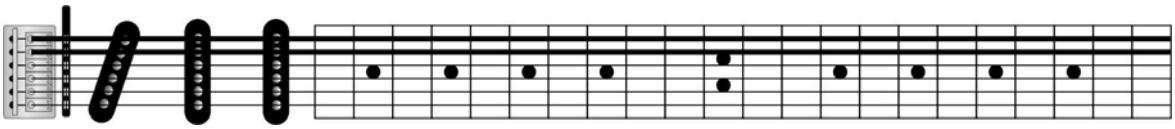
Pickup / Instrument	Guitar	Bass	Violin	Cello
Magnetic	GM	BM	VM	CM
Piezo	GP	BP	VP	CP

Preset Programming

With your AXON in Preset mode, press the EDIT button to program or edit the current preset. The graphic that now appears at the bottom of the display indicates the current split zone in preset 1, "Grand Piano". This preset has only one playing zone, so the entire graphic is selected.

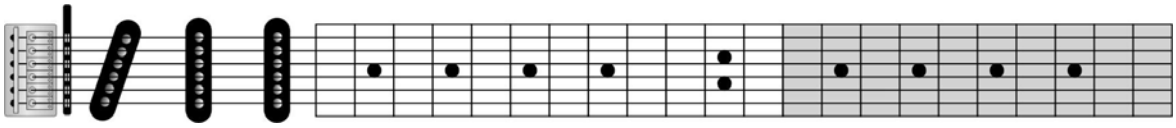
For a more detailed explanation of split zones, we will be taking a closer look at the split options of your AXON below. 'Splitting' refers to dividing the playing area of your instrument into two or more independent zones. Your AXON supports the following split types:

String Split



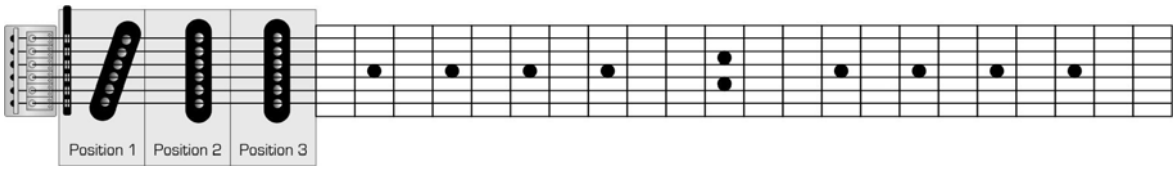
You can divide the six strings of your instrument into two groups, with a different synthesiser sound for each group. For example, you can assign a bass guitar sound to the low E and A string, while using an e-piano sound for the remaining strings. It's entirely up to you where you would like to locate the split.

Fret Split



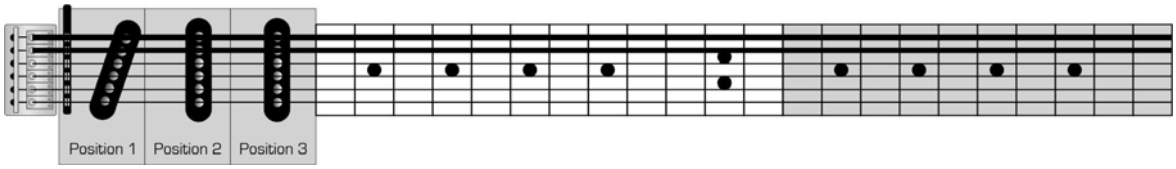
You can also divide the fingerboard of your guitar into two areas with a different synthesiser sound assigned to each area, regardless of the string you are currently playing. You can freely choose the fret position for the split.

Pick Split



It's also possible to divide the area between the bridge and the highest fret—the area in which you normally pick—into up to three sections. The width of each section is freely customisable. You can thus use completely different sounds, depending on whether you are picking near the neck, in the middle, or near the bridge.

Split Combinations



These three different split types can be combined freely, giving you up to 12 different split combination options (2 string * 2 fret * 3 pick split zones). Being able to choose the split points freely within these combinations opens a whole range of possibilities.

Selecting the Split Zones

Ensure that the AXON is in Preset mode (Preset LED lit on the front panel) and select preset 118, MS Synth. Then, press the EDIT button on the front panel. A small graphic will appear on the lower half of the display symbolising the playing area of your guitar.

The triangle at the right side represents the head of your guitar. The three rounded symbols on the far left stand for three pick splits; these can be split into six parts for possible string splits. The area between the pick splits and the head (i.e. the neck) can also be divided horizontally and vertically into four sections corresponding to possible string splits and fret splits. With this graphic, every possible split zone can be represented in the form of bars (selected) or inverted display (not selected). The simplest version is when the preset that you are currently editing does not involve any splits at all. In that case, the bar will cover the entire playing area. If you are working on a preset with a simple string split, the bar will fill either the upper or lower half, depending on the currently active split zone.

Preset 118 has a total of four split zones. The fretboard is split at fret 9 (fret split), and the strings are likewise split into two areas (E, A, d and g, b, e1). In the top graphic, the split zone is selected on strings g, b, e1 and frets 1 – 8; you can then edit it further by pressing the ENTER button.

Press the VALUE +/- buttons to step through all split zones. Depending on the complexity of the preset, you can assign up to 12 different split zones this way. At this point, try once again to analyse the types of splits combined in your selected preset. While this may seem difficult at the moment, you will soon get used to the split zone display. These are explained again in detail in the next chapter. Press the EXIT button to return to normal playing mode.

Changing the Split Parameters

Setting Up Split Zones

Select a split zone as described in the previous section and press the ENTER button. SLCT will be flashing to the left of the graphic.

Your AXON is now waiting for you to either accept the current split zone by pressing the ENTER button or define your own splits. Except for the ENTER and EXIT buttons, all of the buttons are now used to set up split zones. For a start, we will set up a simple string split, resulting in a continuous bar in the upper part of the playing area (lower strings). Press the following buttons: PRESET, STORE, EDIT, VALUE – and VALUE +.

Each button represents a section that can be enabled by pressing it once. Pressing the button a second time will disable the section. Enable all of the sections for the upper playing zone and disable them for the lower zone.

Additional split options:

Simple fret split

Pick split

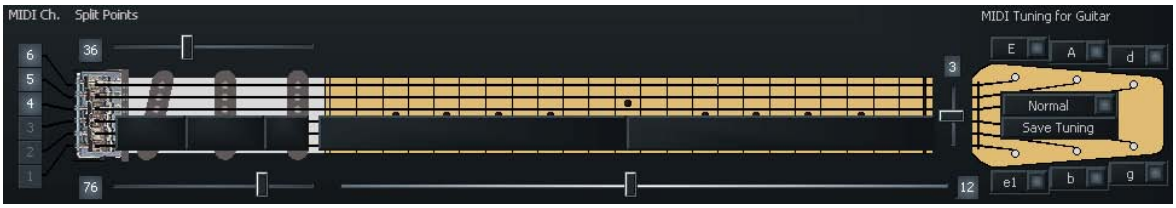
Combination of string, fret and pick split

Split in the Software Editor

A split is triggered via the "+" button in the split row:

The following dialogue is displayed. Select the desired split type here. Though this can be one split, you can also combine multiple splittings:

For example, if a simple string split is selected, this is displayed as follows:



The settings now apply only to the three low strings. Switching to Split 2 inverts the display and the settings apply to the three high strings.

To delete a split point, use the "-" button. This will rejoin the split zone with its neighbour.

If you click the " – " button in an active split (in this case Split 1), you can rejoin the separated playing zones back into this split. To do so, simply enable the corresponding tick box and click "OK".

EDIT LAYER

Within a split zone, you can create additional layers. This allows you to play multiple instruments at the same time or, in addition to the internal sounds, also activate external sound generators with various Program Change commands and Controller data. You can create up to four layers per split zone, but the total number of layers in a preset is limited to 12. You also have to ensure that the MIDI channels you are using do not overlap. Because the MIDI standard only provides for 16 channels, you cannot address the internal sound-board using more than two layers at the same time while in Separate Mode (see page: **38**).

By pressing PARAMETER +, you can define the number of layers for the selected split zone using the +/- buttons.

In the Editor, the "+" and "-" buttons in the layer row are used for this purpose.

Press the PARAMETER – button to return to the EDIT LAYER menu. Now, press the ENTER button. We can now set a number of sound properties for our layer in the split using the PARAMETER +/- buttons:

Select Instrument

Determine the sounds for the layer in the split zone here. The available sounds are sorted into groups. The group is at the left, the instrument at the right. Using the VALE +/- buttons, you can navigate through the selection, and you can toggle between group and instrument using the PARAMETER +/- buttons.

Note: depending on your Utility/Soundnames setting (GM, NUM or WXT) you may see numbers here instead of names. This also applies to the view in the Software Editor.

There, you also have the option of directly typing in the digits for the Program Change number and the corresponding Bank Select numbers.

Program Change send (PROGRAM SEND)

(ON, OFF) Sometimes, you may not want the AXON to send any Program Change commands, for example when using it together with a Software Sequencer. You can disable this function here. To do so you have to switch off the Program button in the Editor.

MIDI Output Channel

MIDI channels (B/H, 1 – 16) Here define the channels on which the MIDI information is to be sent. As mentioned above, it is important that the channels used on the same output port of the various layers do not overlap. B/H stands for Basic/Hold Channel. The globally configured channels are used. Note that the configured String Mode has an effect on the MIDI channels. Refer also to page **38**.

So that you not lose track of what you are doing, the Editor (to the left of the fretboard on the Presets page) shows the currently used channels for all 6 strings.

As a general reference for everything to do with MIDI, we recommend the Internet resource Wikipedia—we could not offer a better description than that found there:

http://en.wikipedia.org/wiki/Musical_Instrument_Digital_Interface

MIDI Output Ports

(MIDIOUT, SOUNDBOARD, MIDIOUT+SB, NONE) In this menu item, define the output ports to be used for the layer.

Volume

(OFF, 0 – 127) Each layer in the split can be assigned a separate volume, which you can configure here. Use the +/ - Value buttons to set the volume to the desired level. In the "OFF" position, the AXON sends no volume information whatsoever. In the Editor, the Volume button serves this function.

Transpose

(-36 to +36) Use this parameter to transpose the notes played in semitone steps. This lets you play notes on your MIDI instrument that are outside the normal range of your guitar. For our example, enter a value of -12 (-1 octave) to put the bass in its characteristic range.

Quantize

(AUTO, OFF, ON, TRIGGER) This parameter determines whether pitch changes within the set pitchbend range will be carried out continuously or stepwise (quantised):

Auto: If more than one note is played, pitchbend quantisation is enabled automatically. Chords are thus played precisely (without pitchbend), while pitchbend quantisation is disabled for single-note solos with bending, hammer-on, sliding and similar techniques.

Off: No quantisation, continuous pitchbend. All pitch changes (bends, hammer-ons and other techniques) are followed as closely as possible (also see Global Parameters: Pitchbend Range).

On: Quantisation with pitchbend in steps. Increases in pitch are NOT followed with pitchbend until the next semitone is reached, at which point the new pitch value is used. Continuous bends and other techniques are not reproduced as expected. This setting is advantageous when playing chords exclusively, as minor changes in pitch due to varying pressure on the strings no longer have any effect.

Trigger: Quantisation through new Note On command. This value disables pitchbend completely, triggering chromatic semitones when bending or sliding. It corresponds exactly to the global setting PBEND RANGE: OFF (see Global Parameters) but only affects the current split zone. This setting is especially suited to organ or piano sounds, which would otherwise sound extremely unnatural. You can also set the Quantize parameter to AUTO for our example. It then only applies to the bass split, permitting bending there while the piano only triggers chromatic halftones.

Panorama (PAN POS)

(OFF, L15-L1, MID, R1-R15) This parameter shifts the selected sound of your MIDI instrument in the stereo image. The values L15-L1 indicate that the current sound will be shifted more toward the left channel, while the values R1-R15 would result in a shift toward the right channel. The value MID corresponds to the middle position. To disable the panorama function, select "OFF".

Pan Spread

(-15 to +15) Use this parameter to spread the positions of individual sounds across the panorama to ensure that not all (up to six) sounds appear in the stereo position you selected with the PAN POS parameter. Set the

PAN POS value to MID (middle position), for example. Play your guitar and vary the PAN SPREAD value. Please note that your MIDI instrument must support panorama information. Please refer to the manual of your MIDI instrument for more information.

+15: low notes to the left, high notes to the left in the panorama

-15: low notes to the left, high notes to the right in the panorama

Reverb

(OFF, 0 to 127) Use this parameter to set the degree of reverb for the sound used. Increasing the value increases the amount of reverb added to the original sound. You can switch off this controller; to do so, select the value "OFF". You can disable this function in the Editor using the Reverb switch.

Chorus

(OFF, 0-127) You can adjust the strength of the effect using this parameter. Increasing the value will make the effect that your MIDI instrument adds to the original sound more pronounced. The "OFF" position shuts off the Controller data.

Attack Time

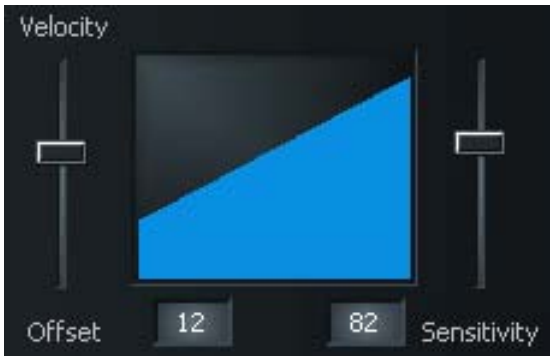
Shorten/lengthen the attack time (OFF, 0-127) Attack time refers to the time from the start of a sound to the point at which it reaches its maximum volume. The effect of this parameter is strongly dependent on the sound being used. If you have selected a percussive instrument such as a piano, shortening the attack time will not be possible, as it is already minimal. This parameter is especially useful for sounds that develop slowly, such as pad sounds. A value of 64 means no change from the sound generator's default attack time. Values less than 64 shorten this time, while larger values lengthen it.

Velocity Sensitivity (VEL SENSE)

(0-127) You can reduce the dynamic range of your MIDI instrument by reducing the value of this parameter. In an extreme case, a value of 0 will cause all sounds from the MIDI instrument to be played at the same volume, regardless of the velocity with which they are played. The value 127 will result in the greatest possible dynamic range.

Velocity Offset (VEL OFFSET)

(-64 to +64) If the restricted dynamic range (see VEL SENSE) of your MIDI instrument has caused it to become too loud or soft, use this parameter to raise or lower the overall volume. In the Software Editor, a graphic lets you configure this setting very easily.



If Velocity Sensitivity is set to 0 and Velocity Offset is set to –64 at the same time, no more MIDI notes are sent. In the Editor, the "Send Notes" button has this purpose. This can be useful if using the AXON to control a non-sound generator (e.g. effects unit, mixer etc.) using only MIDI controllers.

Pick Control

(NO CONTROLLER, CONTRLxxx) This submenu lets you associate your current sound with one of the many MIDI controllers. This can be used to control effects thanks to the AXON's ability to recognise your picking position. For example, if you set the value to Controller 1 (Modulation Wheel), you can simulate the effect of a keyboard modulation wheel with your picking position.

Other interesting effects can be achieved with CTRL 74 (Filter) or CTRL 10 (Pan), for example. Press the ENTER button and use the +/- Value buttons to choose a suitable controller.

The function of the controller will be displayed in plain text. A horizontal line will appear for non-specified controllers. Use the following parameters to specify the value range for which the controller is suited. The effective range of the controller is restricted to one pick split zone (Your AXON supports up to three pick zones, for which you can theoretically use three different pick controllers). Generally, you will not use additional pick splits for a pick control effect. You should therefore set both preset parameters PICKSPLIT1 and PICKSPLIT2 to 0—otherwise the entire picking area from the bridge to the neck will not be available, but only the section within the pick split zone.

Pick Control Value 1 (PICK VAL1)

(0-127) Once you have associated the split zone with a MIDI controller via PICK CONTRL, use this parameter to set the starting value for the controller. Moving your picking position from the bridge toward the neck will cause the value sent to the MIDI controller to continuously move toward the value set for PICK VAL2.

Pick Control Value 2 (PICK VAL2)

(0-127) Once you have associated the split zone with a MIDI controller via PICK CONTRL, use this parameter to set the ending value for the controller. Moving your picking position from the neck toward the bridge will cause the value sent to the MIDI controller to continuously move toward the value set for PICK VAL1.

String instruments

If you have selected a string instrument such as violin or cello in a preset, the Pick Control menu item changes to DynControl (Dynamic Control) and Aftertouch.

Because you can play louder with a bow (unlike when playing a guitar), you can use DynControl / Aftertouch to convert the player's dynamics into MIDI information.

Changing parameters shared by split zones

Until now, the preset parameters pertained solely to individual layers in the split zones. A preset also consists of higher-level parameters used to manage split zones and describe shared characteristics. The transitions or borders between the individual split types are also defined here. To access this level, press the EDIT button while in Preset mode (PRESET LED on). If you are still in the split zone level, simply press the EXIT button twice. Use the PARAMETER +/- buttons to select the following parameters and modify them with the VALUE +/- buttons:

String Split

(1-5) When configuring a string split, use this parameter to specify the first string of the lower string segment, i.e. the start of the lower playing zone. The number refers to the string, with the number 1 being the high E string. For example, if you se the string split to 4, the two bass strings (5 and 6) will belong to the upper and the lower four strings (1-4) to the lower split zone.

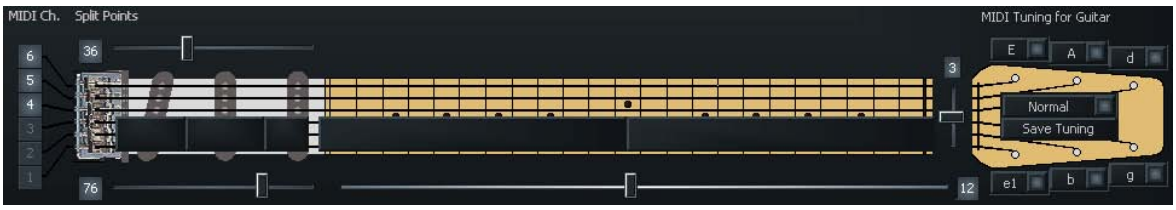
Fret Split

(0-23) If you are using a fret split in your preset, use this parameter to specify the first fret of the left split segment, i.e. the left playing zone as seen on the graphic of the AXON. The number refers to the fret numbers, with fret 0 being the open string. For example, if you set the fret split to 4, the open strings and frets 1 through 3 will be assigned to the right split zone, while frets 4 and up will belong to the left split zone.

Pick Split 1 and 2

(0-99) If you are using pick split options in your preset, these parameters determine the width of the individual picking zones between the bridge and neck. The picking area is divided into 100 units: 0 is the bridge, and 99 corresponds to the start of the fingerboard. If you have divided this area into two zones, the parameter in PICK SPLIT 1 will indicate the start of the right picking zone. For example, if you enter 50, the picking area will be divided into two equally large zones. To divide the picking area into 3 zones, specify a value for the start of the third zone in PICK SPLIT 2. For three equally large zones, set the value for PICK SPLIT 1 to 33 and the value for PICK SPLIT 2 to 66.

In the Software Editor, you can use sliders to adjust the split points, which are graphically illustrated.



Preset Name

Be sure to give presets you have created a descriptive name to make them easier to find. The name may contain up to 12 characters. Press ENTER to start editing a name. The cursor will now move to the first letter, which you can change using the VALUE +/- buttons.

Upper and lower-case letters are supported, as are special characters. Use the PARAMETER + button to move the cursor to the next letter. The PARAMETER - button moves the cursor back by one place. A number of buttons on the front panel of the AXON have special functions during the editing process:

The GLOBAL button switches the current lower-case letter to upper case.

The UTILITY button switches the current upper-case letter to lower case.

The CHAIN button switches the current letter to the first available special character, "!".

The PRESET button replaces the current letter with a space.

The STORE button has an insert function, moving all characters to the right of the current cursor position one place to the right. The last character will be removed or overwritten.

The EDIT button has a delete function, removing the character at the cursor position and moving all following characters one place to the left. A space is inserted as the last character.

Press the EXIT button to exit the Text Editor.

Guitar No.

(GLOBAL, 1 – 8) Here, you can define which preset to use for the currently used instrument. The GLOBAL value always uses the default configured in the GLOBAL menu.

String Mode

(COM, SEP) String Mode determines how the strings of your guitar are assigned to the MIDI basic channel (see Global Parameters):

Common Mode (COM) In Common mode, all of the strings of your guitar are assigned to the MIDI basic channel. To prevent conflicts with notes still sounding on the same channel, no pitchbend information is sent when more than one note is being played in this mode. Solo playing is therefore possible with some restrictions. Use this mode if your MIDI instrument can only receive on one MIDI channel. Also, not all sequencer programs support recording multiple channels at the same time. You should also select this mode in this case.

Separate Mode (SEP) In Separate mode, a separate MIDI channel is reserved for each string of your guitar (see Global Parameters). This mode provides the greatest possible flexibility. Pitchbend effects such as bending, hammer-on and sliding only affect the channel of the string being played. These techniques can thus be applied without restrictions. Virtually all current MIDI instruments support multiple channels, so choose this mode whenever possible.

Hold Mode (HOLDMD)

(COMMON, SEP, LAYER, ARPEG, CNTRL, STACK) A variety of effects are available while playing that can be triggered by pressing the hold switch. Your AXON supports five different Hold modes:

- **Common:** A chord played previously will be played by the MIDI instrument until the hold switch is released. Refer also to page **39**.
- **Separate:** You can add a pad sound to accompany your solos, for example. Refer also to page **39**.
- **Layer:** This operating mode lets you combine two presets—in other words, you can play two presets at the same time. Refer also to page **41**.
- **Arpeggiator:** This operating mode provides a powerful arpeggiator with which you can virtually accompany yourself. Refer also to page **41**.
- **Control:** Here you have the option of associating the hold switch with any MIDI controller. Refer also to page **45**.
- **Stack:** The effect is the same as in the LAYER hold mode. The only difference is that the hold switch does not have to be explicitly pressed for this mode. Refer also to page **46**.

Common (COM)

No further MIDI data is sent while the hold switch is being pressed. A chord played previously will be played by the MIDI instrument until the hold switch is released. This also realises a bypass function of sorts—your AXON will not send any additional MIDI data as long as the hold switch is being pressed while in this mode.

Separate (SEP)

In Separate mode, the MIDI channels defined in Hold Channel (see Global Parameters) are additionally available. You can thus add a pad sound to your solos to back yourself. Select a suitable preset for the backing in the submenu (ENTER). Play a chord while pressing the hold switch and release the hold switch. The chord will now be played continuously and you can continue playing on the normal channels. When you press the hold switch again, all sounds being played at that moment will be stopped and you can play another chord. To return to normal mode, press the hold switch briefly and release it.

The following parameters can be set in the submenu:

Hold Preset

(1 – 256) Using the VALUE +/- buttons, choose the preset to be played on the additional channels while the hold switch is pressed.

Volume

(OFF, 0 – 127) You have the option of reducing the volume of the hold preset to ensure a correct balance between the main and hold preset. This will not change the settings of the hold preset itself.

Sequencer Pattern (SEQ PATTERN)

(OFF, 1 – 32) AXON AX 100 MKII users can play a sequencer pattern (drum sequence) parallel to the hold preset (see UTILITY MODE, EDIT SEQUENCE). The drum sequence will be started on a separate MIDI channel as soon as your press the hold switch. The pattern will continue to repeat until you press the hold switch briefly twice (double-click). Enter the pattern number 1-32 of the sequencer pattern to be played when the pedal is pressed, or set the parameter to OFF.

Sequencer Track (SEQ TRACK)

(OFF, 1 – 8) You can also play a complex track sequence (see UTILITY MODE, EDIT SEQUENCE) parallel to the hold preset instead of a pattern sequence. The track sequence (drum sequence) will be started on a separate MIDI channel as soon as your press the hold switch. The track sequence can be cancelled by pressing the hold switch briefly twice. Otherwise, it will continue playing until its defined end. Enter the track number 1-8 of the track sequence to be played when the pedal is pressed, or set the parameter to OFF. Please note that you can only use one of the sequencer types—in other words, if you intend to use a track sequence, the SEQ PATTERN parameter must be set to OFF.

Sequencer Tempo (SEQ TEMPO)

(EXT, 41 – 240) The tempo of the sequence can be synchronised externally using the MIDI Clock (EXT/MIDI IN) or internally by specifying a BPM (beats per minute) value between 41 (very slow) and 240 (very fast). In case of external synchronisation (by a MIDI keyboard or MIDI drums, for example), output does not start until MIDI Start/Sync commands have been received.

Layer

This operating mode lets you combine two presets—in other words, you can play two presets at the same time. This can be useful for realising especially rich solo or ensemble sounds. Select a suitable preset for the hold channels in the submenu (ENTER). This preset will be played together with the normal preset whenever you press the hold switch. After pressing the ENTER button, the submenu will let you set the same parameters as in Separate mode: PRESET, SEQ PATTERN, SEQ TRACK and SEQ TEMPO.

Arpeggiator (ARPEG)

This operating mode provides a powerful arpeggiator with which you can virtually accompany yourself. Unlike SEP mode, which only lets you back yourself with held chords, this mode lets you use more complex backing structures. The notes you play with the hold switch pressed are collected in a loop and the current content of the loop is played on the hold channels. The arpeggio capture ends when you release the hold switch. When playing new notes, the captured arpeggio will play endlessly in the background on the hold channels, otherwise the arpeggio will be stopped. It is thus possible to press the hold switch again and "feed" the current arpeggio new notes without interruption to realise a change in harmony, for example. To stop an arpeggio, simply press the hold switch briefly without playing a note. The parameter settings of the arpeggiator determine how the individual notes will be played back. Not only is it possible to manipulate the sequence of the notes, they can also cover several octaves, for example. Perhaps the most interesting property of the arpeggiator is the rhythmic quantisation of the playback loop with a freely programmable rhythm pattern.

Press ENTER to open the Arpeggiator submenu.

Hold Preset

(1 – 256) Using the VALUE +/- buttons, choose the preset with the audio properties to apply to the arpeggio while the hold switch is pressed.

Tempo

Arpeggiator tempo (EXT, 41 – 240) The tempo of the arpeggio can be synchronised externally using the MIDI Clock (EXT/MIDI IN) or internally by specifying a BPM (beats per minute) value between 41 (very slow) and 240 (very fast). In case of external synchronisation (by a MIDI keyboard or MIDI drums, for example), output does not start until MIDI Start/Sync commands have been received.

NOTE: The tempo selected here also applies to the sequencer!

Length (ARP. LENGTH)

Arpeggiator length (1 – 32) This parameter specifies the maximum number of notes in the arpeggio. While capturing, the content of the arpeggio buffer is constantly output in a loop. Every note you play lengthens the loop until you reach the value set in ARP. LENGTH. If you continue playing, the oldest notes of the loop will be replaced. An arpeggio loop can contain a maximum of 32 notes.

Scan

(Assign, Reverse, Recycle, Up, Down, Up/Down, Random) Several functions are available for playing an arpeggio loop:

In the ASSIGN position, the notes are played in the order in which they were captured.

The REVERSE position acts as a stack and plays the notes back in reverse order.

RECYCLE starts by playing the notes in their original order (like ASSIGN). When the end of the loop has been reached, the notes are played back in reverse order (like REVERSE). This sequence repeats once it has reached the beginning.

In UP mode, the captured notes are played sorted according to pitch in ascending order, in DOWN mode they are played in descending order.

UP/DOWN mode combines these two modes.

Finally, RANDOM plays the captured notes back in random order.

Pattern (PATRN)

(1/16thSt ... USER#1...16) Using this parameter, you can apply rhythmic playback patterns to the arpeggio loop. The arpeggio will be quantised rhythmically according to the pattern:

1/16thSt: Classic arpeggio. Returns the captured notes in a 1/16 staccato.

1/16thLg: 1/16 notes as above, but legato.

1/8thSt: Arpeggio with moderate tempo. Returns the captured notes in a 1/8 staccato.

1/8thLg: 1/8 notes as above, but legato.

1/4thSt: Slow arpeggio. Returns the captured notes in a 1/4 staccato.

1/4thLg: 1/4 notes as above, but legato.

1/2th: Very slow arpeggio with half notes (more precisely: 1/4 note values with 1/4 rests).

1/8Trpl: Arpeggio with moderate tempo. Returns the captured notes as 1/8 triplets.

The patterns BLUES 1 to HOUSE contain rhythmic styles and grooves as factory presets for interesting groove effects:

BLUES 1: Blues rhythm. Especially suitable for bass backing lines.

BLUES 2: Variation of BLUES 1 pattern.

BOOGI 1: Boogie groove. Especially suitable for bass backing.

BOOGI 2: Variation of the BOOGI 1 pattern.

DISCO 1: Disco groove. Especially suitable for bass backing.

DISCO 2: Additional DISCO variation.

ROCK: Rock groove for bass backing.

HOUSE: House rhythm. Well-suited for organ riffs.

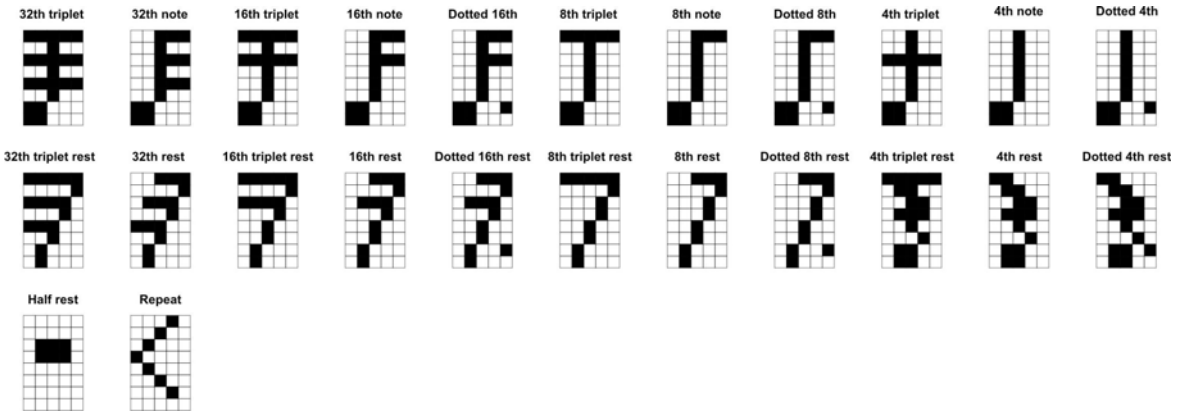
You can also apply one of 16 user-defined rhythm patterns to arpeggios with **USER#1** to **USER#16**. Select one of the USER patterns and press the ENTER button. The Pattern Editor will appear on the display which you can use to enter the time values for the arpeggio notes.

Use the PARAMETER +/- buttons to move the cursor on the pattern buffer grid. Set the time value at the cursor location with the VALUE +/- buttons. A "<" at this point marks the end of the pattern. The pattern is continuously repeated between the start and end point and controls the output of the arpeggio note values. A pattern can use a maximum of eight different note value symbols at the same time (no restriction applies when using the Computer Editor). The LOOP symbol "<" is not affected by this. A number of buttons on the front panel of the AXON have special functions during the editing process:

The STORE button has an insert function, moving the pattern one place to the right from the current cursor position. The last symbol at the end of the pattern will be removed or overwritten.

The EDIT button has a delete function, removing the symbol at the cursor position and moving all following symbols one place to the left. A loop symbol "<" is inserted at the far right.

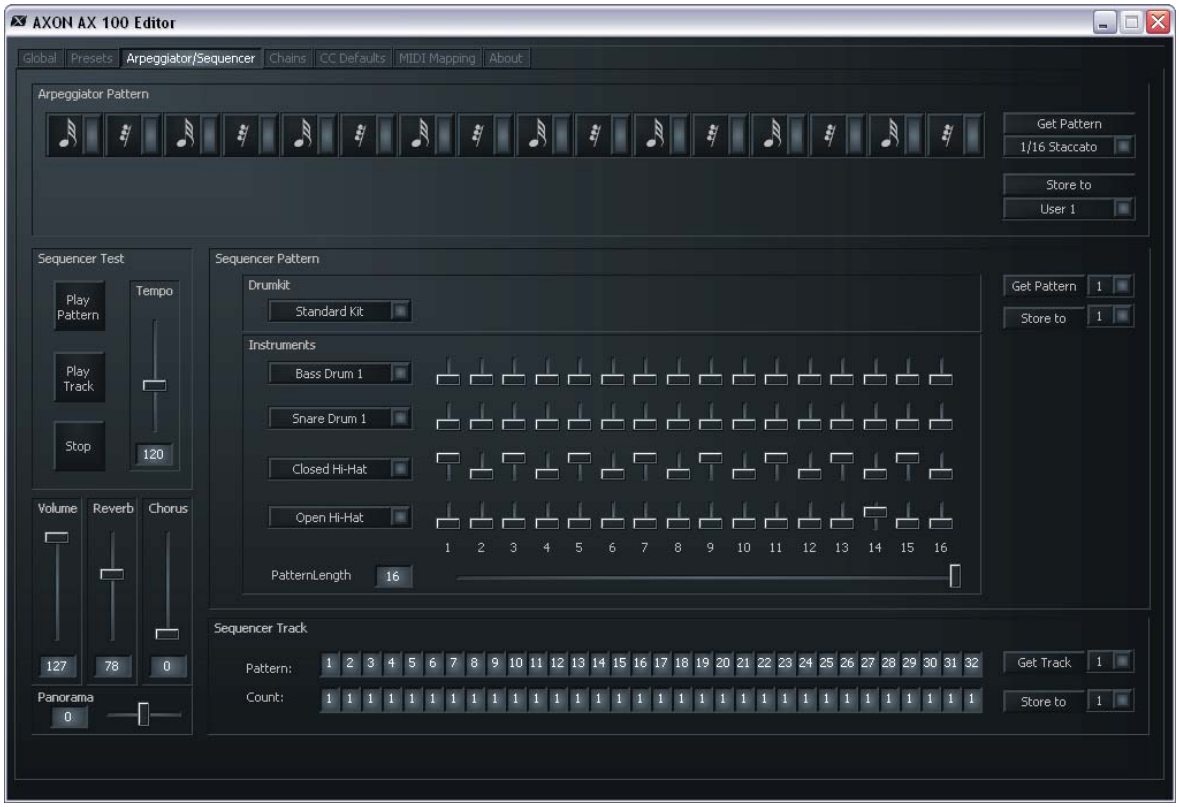
Press the EXIT button to exit the Pattern Editor.



Display of note values

Programming a pattern is far more convenient in the Software Editor. Under Arpeggiator/Sequencer, the upper area contains a graphic illustration of the 16 possible steps. For each step, you can now select the desired note or rest from the drop-down menu. You can also insert notes using the right arrow symbol, which pushes all the notes after it one step to the right. The left arrow symbol deletes the selected step, and all the notes after it move to the left.

You can save your own pattern to one of the 16 user memory positions using the "Store to" button.



Sync

(ON, OFF) If you played fewer notes while ON than specified in LENGTH, the pattern will repeat from the beginning after the last captured note and before the start of the next note value.

Octaves

(1 – 4) Here you can determine whether the arpeggio is to be repeated in the next octave position after the loop completes. For example, if you enter a "2" here, the arpeggio will be played first in the normal, then in the next higher octave position. The maximum value is 4 octaves. Value 1 plays the arpeggio only at the pitch at which it was recorded.

Repeats

(1 – 32) Use this value to repeat the individual notes of the arpeggio. If this parameter is set to "1", each note will be played once only. Higher values cause the note to be repeated accordingly. Each note can be played up to 32 times.

Velocity

(OFF, 0 – 127) If this value is set to OFF, the arpeggio will be played back with velocity values as played on the guitar. You can assign a fixed value for the dynamics of the notes by specifying a value between 0 (soft) and 127 (loud).

Sequencer Pattern (SEQ PATTERN)

(see page **40**)

Sequencer Track (SEQ TRACK)

(see page **40**)

Editing HOLD Presets

You have the option of branching directly to the parameter settings of the hold presets while editing HOLDMD: SEP..., HOLDMD: LAYER... and HOLDMD: ARPEG.... Press the EDIT button when the hold preset is displayed. The first line will display the text 'HD: <Presetname>' and all parameters will be editable as usual. Press the EXIT button to return to your starting point. The hold preset name will flash whenever a parameter has been edited but not saved. The edited hold preset can be stored under any preset number using the STORE button.

Control (CNTRL)

In this operating mode, you have the option of associating the hold switch with any MIDI controller. When the hold switch is pressed, the specified controller is output with the maximum value 127 (7Fh). As soon as you release the hold switch, the controller is reset to 0. Suitable controllers include Damper Pedal On/Off (64) and Portamento (65). Press the ENTER button to open the submenu and set the values for the following parameters.

Holdcontrol

(Controller #0 – #119) Select the MIDI controller that is to be set to its maximum value of 127 when the hold switch is pressed. The function of the controller will be shown in plain text on the display of your AXON.

Sequencer Pattern (SEQ PATTERN)

(see page **40**)

Sequencer Track (SEQ TRACK)

(see page **40**)

Tempo (SEQ TEMPO)

(see page **40**)

Stack

The effect is the same as in the LAYER hold mode. The only difference is that the hold switch does not have to be explicitly pressed for this mode. The layer effect is thus continuously available. Otherwise, the same parameters are available as in LAYER mode. (also see LAYER...)

Wheel Controller (WHEELCNTL)

WHEEL CONTROLLER (AIX, EXP1, EXP2) Your AXON supports up to three different wheel controllers at the same time:

- AIX (in the Editor: "Pickup") is the wheel on the interface PU 100, AIX 101/103
- EXP1 and EXP2 are expression pedals that can be connected to the rear panel of the AXON.

Select the wheel that you would like to associate with a MIDI controller with the VALUE +/- buttons and press ENTER. The first line of the display shows the currently selected wheel, the second indicates the controller to be associated with the wheel.

Use the VALUE +/- buttons to select the correct controller type. The name of the controller will be displayed in plain text. Controllers that do not comply with the MIDI specification are shown as "-------- ". The "NO CONTROLLER" setting will result in the wheel not being associated with a controller and thus being without an effect. This setting is useful for controlling a running arpeggio without affecting the main preset. Set up the preset used by the arpeggio so that the wheel at the AIX 101 / 103 interface affects a filter controller (#74). For the main preset, select "NO CONTROLLER" instead of "VOLUME 7". Now you can control the running arpeggio continuously with the filter effect without affecting the volume of the main preset. Press the EXIT button to return to the main menu.

Non Registered Parameter Number / Registered Parameter Number (NRPN/RPN)

(NONE, NRPN, RPN) Many synthesiser manufacturers support the modification of sound properties via so-called NRPN (non-registered parameter number) and RPN (registered parameter number) numbers. RPNs are defined in the MIDI specification; NRPNs are manufacturer-specific. For more information on NRPNs, please refer to the manual of the MIDI output device.

The approach is the same for both types: a system parameter is set with the associated NRPN-LSB and MSB or RPN-LSB and MSB controllers that can be modified subsequently with controller #6 (DATA ENTRY MSB) or controller #38 (DATA ENTRY LSB).

The following is an example of such an application with your AXON: Let's assume you have read in the manual of your synthesiser that the manufacturer supports filter control via the NRPNs MSB=01h and LSB=21h. Select "NRPN/RPN", then "NRPN" with the VALUE +/- buttons, then press the ENTER button. The first line of the display will once again indicate whether your are currently editing NRPNs or RPNs. The second line shows the MSB and LSB values. The cursor will initially be positioned over the MSB field. Use the VALUE +/- buttons to enter the value 01h. Use the parameter buttons to switch to the right to the LSB field and enter the value 21h. You have now set up the NRPN and specified that controller #6 (or #38) can be applied to a filter. Pick control and the three possible wheels are now available as sources for the controller #6/#38. If you specify the wheel of the AIX 101 / 103 interface for the controller #6 (#38), you can now use it to affect the current sound of your synthesiser. Press EXIT to leave the submenu.

Please see page **64** for the NRPN controllers of the internal soundboard.

Note: We would advise less-experienced users against using the RPN controllers, as this may affect pitchbend sensitivity and tuning in such a way that your AXON will play incorrect notes. And another note for insiders: Normally, the underlying NRPN or RPN controller should be reset to NULL (7fh) after making changes with the DATA ENTRY controller. The DATA ENTRY controller will then no longer have an effect. Your AXON does not do this, as it would result in an enormous increase in MIDI data. These controllers are reset to NULL when changing presets or changes to the NRPN/RPN itself, however.

Finger Pick

(OFF, ON) The pitch recognition of the AXON is best suited for use with a pick. You can also get good results with finger picking, however. Simply switch this parameter to "ON". The pick split and pick control functions will no longer be available in this case. Ensure that the current preset does not use a pick split, or that the pick controller is disabled (NO CONTROLLER).

MIDI Tuning

Select the tuning of the MIDI output here. Because the AXON knows the notes that are picked, it can also transpose them. It supports pitch changes of up to +/- 3 octaves, which can be set separately for each string. Using the VALUE +/- buttons, you can configure the desired pitch of the open string; press PARAMETER + to move on to the next strength.

The Software Editor also allows you to load alternative standard tunings such as Drop D, Open A, etc. directly from a selection menu and to save your own creations.

Chain Mode

It is likely that you will want to change your programmed presets frequently when performing live. The Chain mode of your AXON lets you program chains of presets that you can then call up easily in the required order. Up to 32 Chain presets are supported, each with up to 32 preset steps. You can then step through the Chain presets or the individual preset steps with the UP/DOWN buttons of your guitar interface, or use a footswitch to step through the individual steps of a chain only.Connect the footswitch to the socket marked "Chain" on the rear panel of the AXON. A single click will move forward one step, while a double-click will go back one step in the chain. You can thus navigate all Chain presets and steps from your guitar using a combination of footswitch and UP/DOWN buttons.

Setting Up Chain Presets

Press the CHAIN button on the front panel of your AXON and select Chain preset 1-32 with the VALUE +/- buttons. The top line of the display shows the name (here, No Name 1) and, next to it, the chain storage position (here, 1). The bottom line shows the preset on the left and, on the right, the corresponding step within the chain (here, likewise 1).

Press the EDIT button to start programming the chain. The following parameters can be accessed using the PARAMETER +/- buttons.

Chain Preset Name

(max. 12 characters)

Give the Chain preset a descriptive name (e.g. the name of a song) here for easy orientation later. Press the ENTER button and select the individual letters with the VALUE +/- buttons. The PARAMETER +/- buttons will take you directly to the first and last characters. Press EXIT to exit the naming submenu. As in all text-related functions, the special buttons (A-Z, a-z, !-9, Space, Insert, Delete) are also available here.

Preset

(1-256)

Use the VALUE +/- buttons to assign the number of the preset to be used for the current step. Confirm the selected preset number with ENTER. This will automatically take you to the next step.

Step

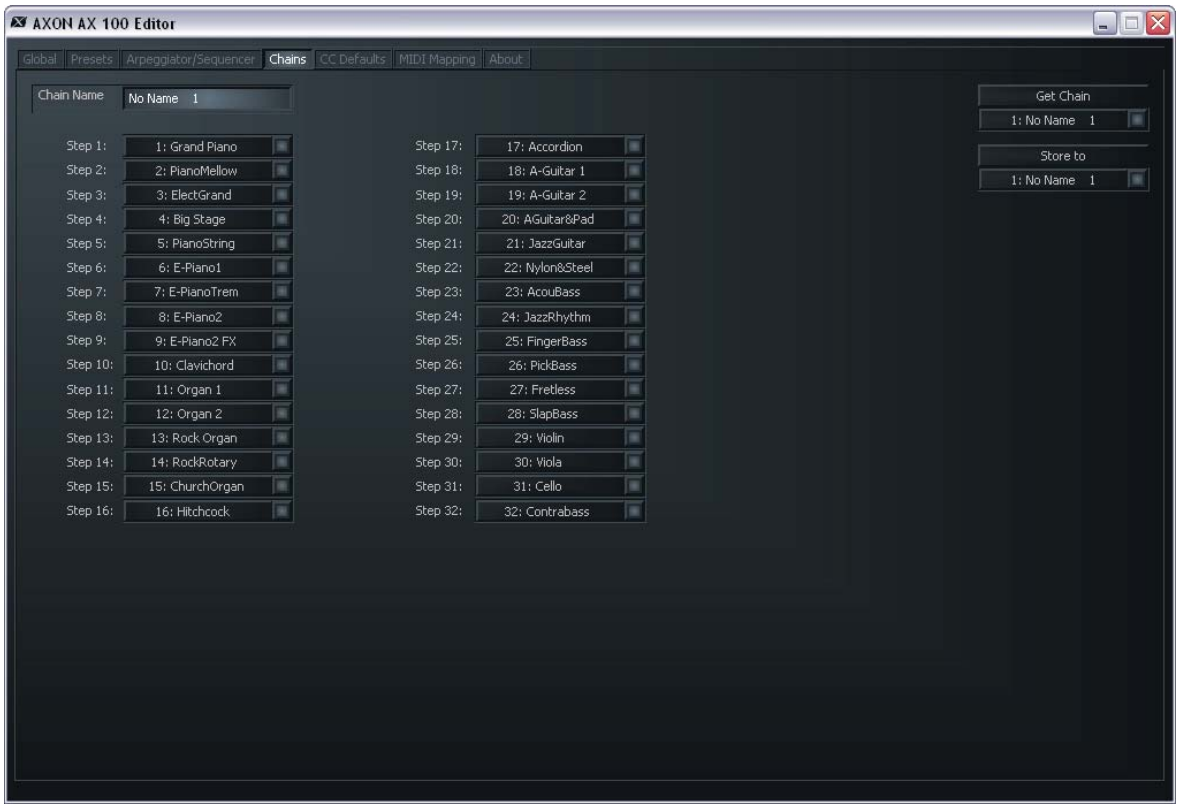
(1-32)

Use the VALUE +/- buttons to select the current step within the chain. The preset assigned to the step is shown at the left. To insert a preset step into an existing chain, simply press STORE at the insertion point. This will insert a further step into the chain and move all subsequent steps to the rear by one step. You can now specify the program or preset number for the step. By default, the inserted step has the same values as the previous step in this location. You can also delete existing preset steps from the chain. Select the number of the step you would like to delete and press the EDIT button. The current step will be removed and all following steps will be moved forward.

Storing Chain Presets

Press the EXIT button to exit Chain mode. Whenever you edit any values, a line of the display will flash to indicate that the changes have not been saved. Press the STORE button. Choose the location (1-32) at which you would like to store the changes. Pressing the ENTER button will save the changes to the current, edited location. You can choose a different location, however. In this way you can copy Chain presets in which you only intend to make minor changes. To exit without saving your changes, simply press the EXIT button.

This programming step is also much easier in the Software Editor, due to the more clearly arranged display:



Utility Mode

Utility mode can be activated by pressing the UTILITY button on the front panel of your AXON. The state is signalled by a lit LED next to the UTILITY button. A number of settings for the display of your AXON can be configured using the Utility parameters. It also contains the functions for loading and storing settings via MIDI (SysEx), letting you manage and save the parameter settings of your AXON on your computer. These functions are more convenient in the Editor, however. The Editor does not have a special Utility page, as the functions either do not exist in the Editor, are located on the Global page or fill their own page.

Display

Utility for display (TUNING, LEVEL) You can decide which utility is to continuously appear on the bottom half of the display:

Tuning: If you set the display parameter to this value, your AXON will show a guitar tuner on the lower half of the display that you can use to monitor the correct tuning of your instrument while playing. Tune each string until the line is located over the arrow in the middle of the scale. If the Tune Base parameter is set to 0, the middle arrow corresponds to a tuning calibration of 440 Hz.

Level: Selecting this value will replace the tuner on the bottom half of the display with a VU (LEVEL) meter. The positions of the bars correspond to the levels of the individual strings. These levels let you monitor the dynamics of the played strings.

In the Editor, you cannot change this setting.

Sound names

Display type for sound names (NUM, GM, WXT) The AXON can display the sound presets or timbres used in a variety of ways.

NUM

All sounds or timbres are managed numerically in the form of a program number and a MIDI bank. A MIDI bank can contain up to 128 program numbers. By splitting the MIDI bank into an MSB (Most Significant Byte) and LSB (Least Significant Byte) section, it becomes possible to address up to 128 x 128 MIDI banks. Use this setting if your sound module does not support the GM (General MIDI) standard.

GM

The sounds or timbres are managed according to the GM (General MIDI) standard. The names of the timbres are shown in plain text on the display. As the GM standard only features 128 timbres, some manufacturers of GM-capable sound modules have implemented a number of kits that can be selected via MIDI banks. The AXON splits the MIDI bank into an MSB (Most Significant Byte) and LSB (Least Significant Byte) section, making it possible to address up to 128 x 128 GM kits. Use this setting if your sound module supports GM.

WXT

The sounds or timbres are displayed and selected according to the names of the internal WAVE XTABLE soundboard. This soundboard contains 492 sounds and 12 drumkits. The sounds are sorted into 21 groups for easier orientation.

In this setting, the MIDI banks are selected automatically. Manual MIDI bank selection therefore is not necessary.

Doubleclick Response (DCLIC RESPNS)

(1-20) This parameter sets the interval that will be recognised as a double-click on one of the two footswitches. As you may recall, double-clicking the chain switch navigates back one step in the chain, while double-clicking the hold switch can stop the drum sequencer.

Transmit SysEx (XMIT SYSEX)

Send System Exclusive data. Use this submenu to send all important parameter settings of your AXON via MIDI. The data can be received by a computer running suitable software such as a sequencer program, or another AXON AX 100 MKII. This function can also be used to send the parameter set to the computer, manage it there in groups and reload it to the AXON. This can be useful for creating your own preset library. Press the ENTER button and use the Parameter +/- buttons to select the range you would like to send. Use the Value +/- buttons to select individual sections.

Press the ENTER button again to start the transfer. The transfer is complete when READY appears on the display.

Using the Editor, transfer to a computer is much easier, and a SysEx file is saved to the hard drive immediately. The text in brackets indicates where you can find this function in the Editor.

TOTAL DUMP [Global: Save all Settings]

Use this function to send the full parameter set of your AXON as one large dump.

PRESET... (ALL, 1 to 128) [Presets: Save to Disk]

Here you can choose whether to send all 128 USER presets or selected presets. In the editor, you can only save individual presets here.

CHAIN... (ALL, 1-32)

Sends all chains or selected chains.

ARP-PATTRN... (ALL, 1-16)

Sends all rhythm patterns programmed for the arpeggiator, or only selected individual patterns.

SEQUENC... (ALL, PATTRN, TRACKS)

Sends all programmed drum sequences, or separated according to patterns and tracks.

Receive SysEx

Receive System Exclusive data

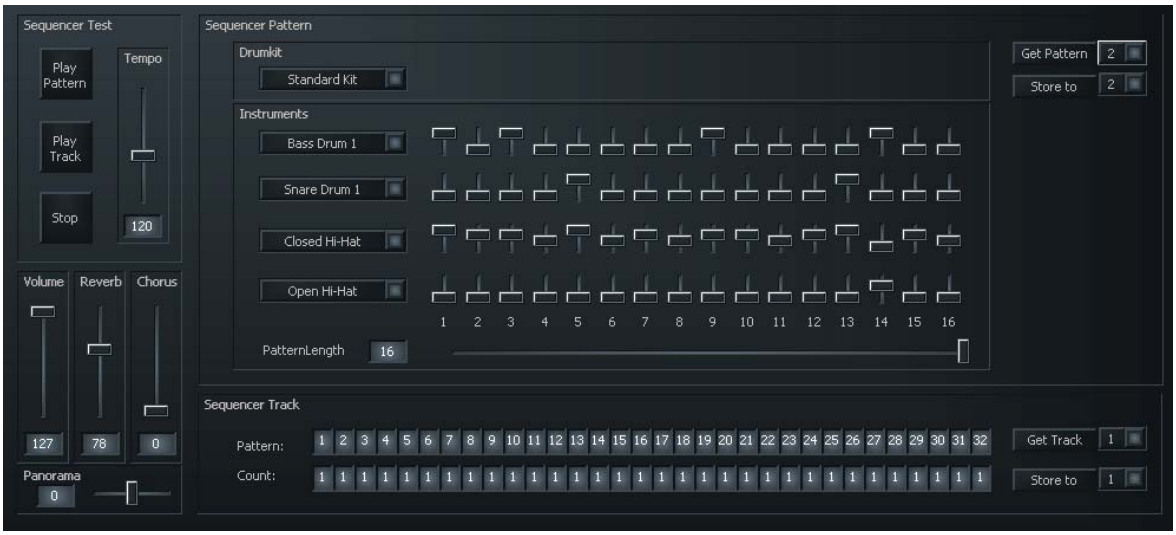
ON: The AXON is ready to receive SysEx data at its MIDI IN port. This setting must be selected when using the Editor.

OFF: All received SysEx data will be ignored.

Edit Sequence

Editing drum sequences. The AXON supports the programming of drum sequences that can be triggered by the hold switch while in Preset mode. A distinction must be made between a pattern and a track sequence. A pattern consists of a maximum of 16 individual steps of identical length. You may select up to four drum instruments from any drumkit and trigger them within the step at three different dynamic levels. Up to 32 patterns can be created in the Pattern Editor. You may then use the programmed patterns in a track sequence that controls the patterns according to your specifications. Up to 32 program steps are available in which you can combine patterns in any order or repeat them as needed.

This menu item is located in the Software Editor, on the Arpeggiator / Sequencer page.



Press the ENTER button to open the drum sequencer menu.

Tempo

(EXT, 41–240) The tempo of the drum sequencer can be synchronised externally using the MIDI Clock (EXT/MIDI IN) or internally by specifying a BPM (beats per minute) value between 41 (very slow) and 240 (very fast). In case of external synchronisation (by a MIDI keyboard or MIDI drums, for example), output does not start until MIDI Start/Sync commands have been received. The tempo set here will be overwritten by the tempo in the preset and is only intended for editing sequences.

Volume

Volume (0–127) The drum sequencer has a separate volume control. View the value of this parameter to adjust the level of the drum sequencer in relation to the other conditions.

Panorama

Positioning in the stereo image (L15 – R15) Here, you can define where the output drum sequence is to be heard in the stereo image. L15 means that it is heard in the left channel only, MID means that it is heard in both channels; R15 means that it is heard in the right channel only.

Reverb

(0 – 127) The degree of reverb effect for the drum sequencer can be adjusted separately. Use the VALUE +/- buttons to set the parameters to the required value. Select 0 if you do not need reverb for the drum instruments.

Chorus

(0 – 127) Define the degree of the chorus effect for the output of the drum instruments. Select 0 if you do not need chorus effect for the drum instruments.

Mode

(PATTERN, TRACK) As mentioned previously, your AXON has two different options for playing drum sequences. You can call either individual patterns or complete tracks containing multiple patterns. Use this parameter to determine the operating mode for the drum sequences during editing.

Sequencer Pattern

Pattern Editor (1 – 32) This submenu takes you to the Pattern Editor. Up to 32 patterns can be created and either played individually or assembled to complete track sequences in the Track Editor. Select the desired pattern number with the VALUE +/- buttons and press ENTER to start programming a pattern.

Drumkit

(Jazz Kit, Brush Kit, etc.) Choose the drumkit to be used for the drum pattern here.

Steps

(1 – 16) Here you can specify the number of 1/16 steps within the pattern. Later, you will be able to assign up to four simultaneous drum instruments in three dynamic levels to each step. A value of 12 corresponds to a three-quarter beat, for example.

Instruments (1-4)

Select an instrument from the list of the selected drumkit and start the editing process (ENTER button). The lower half of your AXON display will now show a dotted line with a cursor that you can move back and forth (PARAMETER +/- buttons) according to the individual steps specified in STEPS. Use the VALUE + button to set an accent at a selected step position. The accent is marked by a small bar at the step position.

Pressing the VALUE + button repeatedly strengthens the accent, which is indicated by a correspondingly larger bar. Conversely, the VALUE - button weakens existing accents or removes them from the pattern.

Press the EXIT button when you are finished programming the drum instrument. You can now repeat the process for up to three additional instruments to be used within the pattern.

Press the EXIT button again to close the Pattern Editor. Changes to a pattern are indicated by a flashing display. Press the STORE button to save the pattern to memory.

Sequencer Track

Track Editor (1-8)

Use this submenu to open the Track Editor for drum sequences. Up to 8 tracks can be programmed, which can then be triggered within a preset using the hold switch. A track sequence consists of up to 32 steps in which you can combine patterns in any order or repeat them as needed. Select the desired track number with the VALUE +/- buttons and press ENTER to start programming the track. Press the EXIT button again to close the Track Editor.

Step (ST)

(0-31)

Enter the step number of the track sequence here. The individual steps will be played in order. A maximum of 32 steps are available.

Count (C)

(0-99)

Use this parameter to set the number of times the pattern should be repeated within the step specified in ST. The value 1 will play the pattern once. Higher values will repeat the pattern the given number of times. The value 0 marks the end of a track sequence. The drum sequencer will automatically cancel the track output at this point.

Pattern (PT)

(1-32)

Select the pattern to be played back at the step number specified in ST. Changes to a track are indicated by a flashing display. Press the STORE button to save the track to memory.

ADC Monitor (ADC MON)

This option will provide you with an insight into the ANALOG/DIGITAL CONVERTER of your AXON. Press the ENTER button to monitor the digitised hex data generated by the AXON from the analogue string signals. This can be useful for diagnostic purposes, when detecting defects in the cable between the guitar interface and the AXON, for example.

Appendix

Factory Reset

Press and hold the PRESET and EXIT buttons while powering the device up. All settings will be returned to their factory defaults. As this also affects the presets, be sure to back them up beforehand with the Editor (see SysEx)

Factory Presets

Factory presets were assigned to memory slots 129-256 to give you an overview of the wide range of possible playing parameters. You can also use the factory presets as a starting point for your own experimentation, editing them to suit your wishes. Edited factory presets can be stored in any of the slots within the USER range (1-128).

Troubleshooting

No output to external MIDI output device.

Question: When I play my guitar, the AXON responds by displaying the pitches or the string level on the display, but the MIDI output device does not play.

Possible fault: Cabling/setup

Solution:

Ensure that the MIDI cables are correctly connected (from the MIDI OUT of your AXON to the MIDI IN of your synthesiser).

The MIDI channels of both instruments must be set correctly.

The synthesiser should be in multitimbral mode.

Also ensure that the audio cable from your synthesiser to the amplifier is intact and correctly connected.

Bending doesn’t work properly.

Question: I hear the right note when I pick a string, but hammer-on, pull-off and bending does not work.

Possible problem: The pitchbend settings of the AXON and the external device may not match, or "Quantize" is enabled.

Solution:

Check whether the pitchbend range settings of the external MIDI device match those of the AXON (GLOBAL MODE).

Ensure that the QUANTIZE value in the preset split (PRESET MODE) is set to AUTO or OFF.

I get partially incorrect notes.

Question: When I play my guitar, the notes I hear are either partially or completely wrong.

Possible problem: Tuning discrepancy.

Solution:

Tune your guitar using the AXON tuning aid. If you need to tune the AXON to match your guitar, use the Tune Base function in GLOBAL MODE.

The transposition function may be accidentally enabled in the preset split. Disable transposition (PRESET MODE).

Your MIDI output device may also be incorrectly tuned or transposed. Make sure that all of the values are correct.

Differing string volumes

Question: One or more strings is too loud or soft in relation to the others.

Possible problem: the sensitivity of the individual strings is not set correctly.

Solution:

Adjust the sensitivity of the affected string(s) in the AXON. (-> GLOBAL/GUITAR)

Strong differences in the dynamics of individual notes

Question: What can I do about extremely irritating, strong dynamic differences between individual notes?

Possible problem: Incorrect velocity parameters.

Solution:

The velocity settings of the AXON must be suitable to the sound of the output device. Try reducing the velocity sensitivity parameter in the split preset (PRESET MODE) and increasing the velocity offset parameter.

Incorrect sounds

Question: Sounds shown on the display of the AXON do not match those that I'm hearing from the external MIDI output device.

Possible problem: The external MIDI output device is not working in General MIDI mode, or does not support this mode.

Solution:

Set your MIDI output device to GM mode. If your output device does not support this standard, set the Sound-names parameter to "NUM". You will then be able to select sound programs numerically via the MIDI bank and number.

Preset list

Style	Nr.	Name	Holdmode	Control/Preset	Split 1	Instrument	Transpose	Quantize	Misc	Split 2	Instrument	Transpose	Quantize	Misc
Piano	1	GrandPiano	Control	Damper Pedal On/Off	-	Grand Piano Wide		Trigger		-				
	2	PianoMellow	Control	Damper Pedal On/Off	-	Grand Piano Mellow		Trigger		-				
	3	ElectGrand	Control	Damper Pedal On/Off	-	Electric Grand		Trigger		-				
	4	Big Stage	Control	Damper Pedal On/Off	-	The Big Stage		Trigger		-				
	5	PianoString	Control	Damper Pedal On/Off	-	Grand Piano & Stereo Strings		Trigger		-				
	6	E-Piano1	Control	Damper Pedal On/Off	-	Electric Piano 1		Trigger		-				
	7	EPianoTrem	Control	Damper Pedal On/Off	-	Electric Piano 1 Tremolo		Trigger		-				
	8	E-Piano2	Control	Damper Pedal On/Off	-	Electric Piano 2		Trigger		-				
	9	E-Piano2.FX	Control	Damper Pedal On/Off	-	Electric Piano 2 Chorus		Trigger		-				
	10	Clavichord	Control	Damper Pedal On/Off	-	Clavichord		Trigger		-				
Organs	11	Organ 1	Control	Modulation Wheel	-	Drawbar Organ 1		Trigger		-				
	12	Organ 2	Control	Modulation Wheel	-	70s Organ		Trigger		-				
	13	RockOrgan	Control	Modulation Wheel	-	Rock Organ		Trigger		-				
	14	RockRotary	Control	Modulation Wheel	-	Rock Rotary		Trigger		-				
	15	ChurchOrgan	Control	Modulation Wheel	-	Church Organ		Trigger		-				
	16	Hitchcock	Control	Modulation Wheel	-	Hitchcock Organ		Trigger	Attack -6	-				
	17	Accordion	Control	Modulation Wheel	-	Accordion		Trigger	Attack -7	-				
Guitars	18	A-Guitar 1	Seperate	128: Hold Pad	-	Nylon Guitar 2		Off		-				
	19	A-Guitar 2	Seperate	128: Hold Pad	-	Nylon Guitar Wide		Off		-				
	20	AGuitar&Pad	Control	Modulation Wheel	-	Ocean Memories		Off		-				
	21	JazzGuitar	Arpeggiator	24: JazzRhythm	-	Jazz Guitar Amp		Off		-				
	22	Nylon&Steel	Seperate	128: Hold Pad	-	Nylon & Steel		Off		-				
Basses	23	AcouBass	Seperate	25: FingerBass	-	Acoustic Bass	-12	Off		-				
	24	JazzRhythm	Seperate	128: Hold Pad	-	Jazz Rhythm	-12	Off		-				
	25	FingerBass	Seperate	26: PickBass	-	Finger Bass	-12	Off		-				
	26	PickBass	Seperate	28: SlapBass	-	Pick Bass	-12	Off		-				
	27	Fretless	Seperate	25: FingerBass	-	Fretless	-12	Off		-				
	28	SlapBass	Seperate	25: FingerBass	-	Slap Bass 1	-12	Off		-				
Strings	29	Violin	Seperate	127: String Pad	-	Violin	+12	Off	Attack -20	-				
	30	Viola	Seperate	127: String Pad	-	Viola		Off	Attack -20	-				
	31	Cello	Seperate	127: String Pad	-	Cello	-12	Off	Attack -20	-				
	32	Contrabass	Seperate	127: String Pad	-	Contrabass	-12	Off	Attack -30	-				
	33	TremStrings	Seperate	128: Hold Pad	-	Tremolo Strings		Off	Attack -30	-				
	34	Harp	Seperate	127: String Pad	-	Harp		Trigger		-				
	35	Enya's	Seperate	128: Hold Pad	-	Enya's Garden		Trigger		-				
	36	Eden's	Seperate	128: Hold Pad	-	Eden's Garden		Trigger		-				
String-Ensemble	37	Strings 1	Seperate	128: Hold Pad	-	Strings Wide Pan		On	Attack -20	-				
	38	Strings 2	Seperate	128: Hold Pad	-	Slow Strings		On	Attack -40	-				
	39	SynthString	Seperate	128: Hold Pad	-	Synth Strings 1		On	Attack -20	-				
Brass	40	Trumpet	Control	Modulation Wheel	-	Trumpet		Trigger		-				
	41	Trombone	Control	Modulation Wheel	-	Trombone		Trigger		-				
	42	Tuba	Control	Modulation Wheel	-	Tuba		Trigger	Attack -30	-				
	43	French Horn	Control	Modulation Wheel	-	French Horn Solo		Trigger	Attack -40	-				
Reed	44	SopranSax	Seperate	127: String Pad	-	Soprano Sax		Off	Attack -64	-				
	45	AltoSax	Seperate	127: String Pad	-	Alto Sax		Off	Attack -64	-				
	46	Oboe	Seperate	127: String Pad	-	Oboe	+12	Trigger		-				
	47	EnglishHorn	Seperate	127: String Pad	-	English Horn		Trigger	Attack -30	-				
	48	Bassoon	Seperate	127: String Pad	-	Bassoon		Trigger	Attack -25	-				
	49	Clarinet	Seperate	127: String Pad	-	Clarinet		Trigger	Attack -20	-				
Pipes	50	Piccolo	Seperate	127: String Pad	-	Piccolo	+12	Trigger	Attack -20	-				
	51	Flute	Seperate	127: String Pad	-	Flute		Trigger	Attack -20	-				
	52	Pan Flute	Seperate	127: String Pad	-	Pan Flute		Trigger	Attack -20	-				
	53	Bottle	Seperate	127: String Pad	-	Bottle		Trigger	Attack -20	-				
Chrom. Perc	54	Celesta	Seperate	127: String Pad	-	Celesta		Trigger		-				
	55	Vibes	Seperate	127: String Pad	-	Vibes		Trigger		-				
	56	Marimba	Seperate	127: String Pad	-	Marimba		Trigger		-				
	57	Xylophon	Seperate	127: String Pad	-	Xylophon		Trigger		-				
	58	TubularBell	Seperate	127: String Pad	-	Tubular Bells		Trigger		-				
Ethnic	59	Sitar	Seperate	128: Hold Pad	-	Sitar		Trigger		-				
	60	Tamboura	Seperate	128: Hold Pad	-	Tamboura		Trigger		-				
	61	Koto	Seperate	128: Hold Pad	-	T.Koto		Trigger		-				
	62	Kanoon	Seperate	128: Hold Pad	-	Kanoon		Trigger		-				
	63	Kalimba	Seperate	128: Hold Pad	-	Kalimba		Trigger		-				
	64	Shamisen	Seperate	128: Hold Pad	-	Shamisen		Trigger		-				

Style	Nr.	Name	Holdmode	Control/Preset	Split 1	Instrument	Transpose	Quantize	Misc	Split 2	Instrument	Transpose	Quantize	Misc
Synth Lead	65	Square Lead	Seperate	128: Hold Pad	-	Square Lead 2		Off		-				
	66	MunchSquare	Seperate	128: Hold Pad	-	Munch Square		Off		-				
	67	Saw Lead	Seperate	128: Hold Pad	-	Saw Lead		Off		-				
	68	SeqAnalog	Seperate	128: Hold Pad	-	Seq Ana		Off		-				
	69	Big Lead	Seperate	128: Hold Pad	-	Big Lead		Off		-				
	70	Fifth Lead	Seperate	128: Hold Pad	-	Fifth Lead		Off		-				
	71	The Source	Seperate	128: Hold Pad	-	The Source		Off		-				
	72	Oberheim	Seperate	128: Hold Pad	-	Oberheim		Off		-				
	73	Dewire Lead	Seperate	128: Hold Pad	-	Dewire Lead		Off		-				
	74	PercSquare	Seperate	128: Hold Pad	-	Percussive Square		Off		-				
Synth Pad	75	Warm Pad	Control	Damper Pedal On/Off	-	Warm Pad		Off	Attack -20	-				
	76	Thick Pad	Control	Damper Pedal On/Off	-	Thick Pad		Off	Attack -20	-				
	77	SuperAnalog	Control	Modulation Wheel	-	SuperAnalog		Off	Attack -20	-				
	78	Horn Pad	Control	Modulation Wheel	-	Horn Pad		Off	Attack -20	-				
	79	PolySyntPad	Control	Damper Pedal On/Off	-	Poly Synth Pad		Off	Attack -20	-				
	80	AnalogPad	Layer	127: String Pad	-	Ana Pad		Off	Attack -20	-				
	81	Glass Pad	Seperate	128: Hold Pad	-	Glass Pad		Off	Attack -20	-				
	82	Bowed Glass	Seperate	128: Hold Pad	-	Bowed Glass		Off	Attack -20	-				
	83	Silona Pad	Control	Brightness	-	Silona Pad		Off	Attack -20	-				
	84	Cold Space	Seperate	128: Hold Pad	-	Cold Space		Off	Attack -20	-				
Synth Effects	85	HarmoRain	Seperate	127: String Pad	-	Harmo Rain		Off		-				
	86	AfricaWater	Seperate	128: Hold Pad	-	African Waterfalls		Off		-				
	87	AnceString	Control	Modulation Wheel	-	AnceString		Off	Attack -20	-				
	88	Crystal	Seperate	128: Hold Pad	-	Crystal		Off		-				
	89	Harp Vox	Seperate	127: String Pad	-	Harp Vox		Trigger	Attack -20	-				
	90	Stardust	Seperate	128: Hold Pad	-	Stardust		Off	Attack -30	-				
Stringsplit	91	Bass&Piano	Control	Damper Pedal On/Off	String 1,2	Acoustic Bass	-12	Off		String 3,4,5,6	Grand Piano Wide		Trigger	
	92	Jazz Trio	Control	Damper Pedal On/Off	String 1,2	Jazz Rhythm	-12	Off		String 3,4,5,6	Electric Piano 1 Wide		Trigger	
	93	Bass&Guitar	Seperate	128: Hold Pad	String 1,2	Fretless	-12	Off		String 3,4,5,6	Nylon Guitar		Off	
	94	Moog&Lead	Seperate	128: Hold Pad	String 1,2	Simple Moog	-12	Off		String 3,4,5,6	Munch Square		Off	
	95	IndishCurry	Seperate	128: Hold Pad	String 1,2	Warm Pad	-12	On	Attack -7	String 3,4,5,6	Tamboura		On	
Fretsplit	96	Bass&Flange	Seperate	128: Hold Pad	Fret 1-11	Finger Bass	-12	Off		Fret 12-End	Flange Bass	-12	Off	
	97	Country	Arpeggiator	30: Viola	Fret 1-8	Banjo		Off		Fret 9-End	Fiddle	+12	Off	Attack -62
	98	Organs	Control	Modulation Wheel	Fret 1-8	Drawbar Organ 1		Trigger		Fret 9-End	Percussive Organ		Trigger	
	99	GoEast	Seperate	128: Hold Pad	Fret 1-8	Sitar		Trigger		Fret 9-End	T.Koto		Trigger	
	100	Classic	Seperate	127: String Pad	Fret 1-8	Strings		Trigger	Attack -40	Fret 9-End	Violin		Off	Attack -20
Picksplit	101	Basses	Seperate	128: Hold Pad	PickControl 50	Finger Bass	-12	Off		PickControl 50	Slap Bass 1	-12	Off	
	102	Pianos	Seperate	127: String Pad	PickControl 50	Grand Piano		Trigger		PickControl 50	Grand Piano Mellow		Trigger	
	103	Brass	Seperate	127: String Pad	PickControl 50	Trumpet		Trigger		PickControl 50	Brass Section	-12	Trigger	
	104	SynthLeads	Control	Modulation Wheel	PickControl 50	Wire Lead		Off		PickControl 50	Fifth Lead		Off	
	105	Percussion	Seperate	128: Hold Pad	PickControl 50	Celesta		Trigger		PickControl 50	Marimba Wide		Trigger	
Pickcontrol	106	Organ&Mod	Seperate	128: Hold Pad	Pick Control	Drawbar Organ 1		Trigger		Modulation Wheel				
	107	Guitar&Mod	Seperate	128: Hold Pad	Pick Control	Nylon Guitar		Off		Chorus Send Level				
	108	Bass&Filter	Seperate	128: Hold Pad	Pick Control	Synth Bass 1		Off		Brightness				
	109	Synth&Pan	Seperate	128: Hold Pad	Pick Control	Seq Ana		On		Panorama				
	110	Flute&Revrb	Seperate	128: Hold Pad	Pick Control	Flute		Trigger		Reverb Send Level				
	111	Harp&Attack	Seperate	128: Hold Pad	Pick Control	Harp		Trigger		Attack Time				
	112	SynthMorph1	Stack	113: SynthMorph2	Pick Control	Saw Lead		Off		Channel Volume				
	113	SynthMorph2	Stack	112: SynthMorph1	Pick Control	Fat & Perky		Off		Channel Volume				
Multisplits	114	MS Bass	Seperate	128: Hold Pad	see Editor for details									
	115	MS Guitar	Seperate	128: Hold Pad	see Editor for details									
	116	MS Organs	Control	Modulation Wheel	see Editor for details									
	117	MS Piano	Control	Damper Pedal On/Off	see Editor for details									
	118	MS Synth	Arpeggiator	118: MS Synth	see Editor for details									
	119	MS Misc1	Seperate	128: Hold Pad	see Editor for details									
	120	MS Misc2	Seperate	128: Hold Pad	see Editor for details									
Drums	121	Easy Kit	-	-	-	Guitar Easy Kit		Off		-				
	122	StandardKit	-	-	-	Standard Kit	-12	Off		-				
	123	Electro Kit	-	-	-	Electro Kit	-12	Off		-				
	124	TR-909 Kit	-	-	-	TR-909 Kit	-12	Off		-				
	125	Jazz Kit	-	-	-	Jazz Kit	-12	Off		-				
	126	SFX Kit	-	-	-	SFX Kit		Off		-				
Hold	127	String Pad	-	-	-	Strings		Trigger	Attack -20	-				
	128	Hold Pad	-	-	-	Warm Pad		Trigger	Attack -20	-				

MIDI Implementation Chart v2.0

Manufacturer: TerraTec Electronic GmbH Model: AXON AX 100 MKII Version: 7.xx Date: Dec 2007

	Transmitted	Recognised	Remarks
1. Basic Information			
MIDI channels	1-6, 10, 11-16	1, 11 / 1-16 1)	Default Values; Channels 1-16 can be used
Note numbers	0-126	0-127 1)	
Program Change	0-127	0-127	Mapped to Presets when Local Mode = On
Bank Select response? (Yes/No)		Yes 1)	
If yes, banks utilised			MSB only, see Patchlist
Modes Supported (Yes/No)			
Multi (Mode 5)		Yes 1)	
Poly (Mode 3)		Yes 1)	
Omni (Mode 1)		No 1)	
Mono (Mode 2)		No 1)	
"Guitar" (Mode 4)		Yes 1)	
Note On Velocity (Yes/No)	Yes	Yes 1)	
Note Off Velocity (Yes/No)	No	No	
Channel Aftertouch (Yes/No)	Yes	Yes 1)	
Poly (Key) Aftertouch (Yes/No)	No	No	
Pitch Bend (Yes/No)	Yes	Yes 1)	
Active Sensing (Yes/No)	No	No	
System Reset (Yes/No)	No	Yes 1)	
Tune Request (Yes/No)	No	No	
System Exclusive messages supported (Yes/No)			
Sample Dump Standard	No	No	
Device Inquiry (General Information)	No	No	
File Dump	No	No	
MIDI Tuning	No	No	
Master Volume	No	Yes 1)	
Master Balance	No	No	
Notation Information	No	No	
Turn GM System On	No	Yes 1)	
Turn GM System Off	No	No	
Other (note in Remarks column)	Yes	Yes	Described in "MIDI SysEx Implementation"
NRPNs (Yes/No)	No	Yes 2)	Described in "Table of NRPN Controllers"
RPN 00 (Pitch Bend Sensitivity) (Yes/No)	Yes	Yes 1)	
RPN 01 (Fine Tuning) (Yes/No)	Yes	Yes 1)	
RPN 02 (Coarse Tuning) (Yes/No)	No	Yes 1)	
RPN 03 (Tuning Program Select) (Yes/No)	No	No	
RPN 04 (Tuning Bank Select) (Yes/No)	No	No	
2. MIDI Timing and Synchronisation			
MIDI Clock (Yes/No)	Yes	Yes	Used for Arpeggiator and Sequencer
Song Position Pointer (Yes/No)	No	No	
Song Select (Yes/No)	No	No	
Start (Yes/No)	Yes	Yes	Used for Arpeggiator and Sequencer
Continue (Yes/No)	No	Yes	Used for Arpeggiator and Sequencer
Stop (Yes/No)	Yes	Yes	Used for Arpeggiator and Sequencer
MIDI Time Code (Yes/No)	No	No	
MIDI Machine Control (Yes/No)	No	No	
MIDI Show Control (Yes/No)	No	No	
If yes, MSC Level supported			
3. Extensions Compatibility			
General MIDI compatible? (Yes/No)		Yes 1)	
If yes, is GM default power-up mode? (Yes/No)		Yes 1)	
DLS compatible? (Yes/No)		No	
If yes, DLS Level(s) supported			
If yes, can DLS files be imported? (Yes/No)			
If yes, can DLS files be exported? (Yes/No)			
Importation of Standard MIDI Files (Yes/No)		No	
If yes, Types supported			
Exportation of Standard MIDI Files (Yes/No)		No	

NOTES

1) Only recognised when Local Mode = Off. 2) Recognised on any channel when Local Mode = Off. Recognised on Basic/Hold channel only when Local Mode = On. In this case the controller is ignored if it is already assigned internally. It is re-transmitted on the incoming channel when Stringmode = Common. It is re-transmitted on the incoming channel and the 5 following channels when Stringmode = Separate 3) Any Controller between 0 and 119 can be transmitted when assigned to a Wheel/Pedal or used with the Pickcontrol feature. In this table "Transmitted" is only marked with "Yes" if the controller has a function additional to these assignments. 4) The effective Volume/Pan value depends not only on the incoming controller value, but also on several internal parameters

MIDI Implementation Chart v. 2.0

Manufacturer: TerraTec Electronic GmbH Model: AXON AX 100 MKII Version: 7.xx Date: Dec 2007

Control #	Function	Transmitted (Y/N)3	Recognised (Y/N)	Remarks
0	Bank Select (MSB)	Yes	Yes 2)	See Patchlist for banks used
1	Modulation Wheel (MSB)	No	Yes 2)	
2	Breath Controller (MSB)	No	No	
3		No	No	
4	Foot Controller (MSB)	No	No	
5	Portamento Time (MSB)	No	Yes 2)	
6	Data Entry (MSB)	No	Yes 2)	
7	Channel Volume (MSB)	Yes	Yes 2)	4)
8	Balance (MSB)	No	No	
9		No	No	
10	Pan (MSB)	Yes	Yes 2)	4)
11	Expression (MSB)	No	Yes 2)	
12	Effect Control 1 (MSB)	No	No	
13	Effect Control 2 (MSB)	No	No	
14		No	No	
15		No	No	
16	General Purpose Controller 1 (MSB)	No	No	
17	General Purpose Controller 2 (MSB)	No	No	
18	General Purpose Controller 3 (MSB)	No	No	
19	General Purpose Controller 4 (MSB)	No	No	
20		No	No	
21		No	No	
22		No	No	
23		No	No	
24		No	No	
25		No	No	
26		No	No	
27		No	No	
28		No	No	
29		No	No	
30		No	No	
31		No	No	
32	Bank Select (LSB)	Yes	No	
33	Modulation Wheel (LSB)	No	No	
34	Breath Controller (LSB)	No	No	
35		No	No	
36	Foot Controller (LSB)	No	No	
37	Portamento Time (LSB)	No	No	
38	Data Entry (LSB)	No	No	
39	Channel Volume (LSB)	No	No	
40	Balance (LSB)	No	No	
41		No	No	
42	Pan (LSB)	No	No	
43	Expression (LSB)	No	No	
44	Effect Control 1 (LSB)	No	No	
45	Effect Control 2 (LSB)	No	No	
46		No	No	
47		No	No	
48	General Purpose Controller 1 (LSB)	No	No	
49	General Purpose Controller 2 (LSB)	No	No	
50	General Purpose Controller 3 (LSB)	No	No	
51	General Purpose Controller 4 (LSB)	No	No	
52		No	No	
53		No	No	
54		No	No	
55		No	No	
56		No	No	
57		No	No	
58		No	No	
59		No	No	
60		No	No	
61		No	No	
62		No	No	
63		No	No	

MIDI Implementation Chart v. 2.0 Control Number Information Manufacturer: TerraTec Electronic GmbH Model: AXON AX 100 MKII Version: 7.xx Date: Dec 2007				
Control #	Function	Transmitted (Y/N)3	Recognised (Y/N)	Remarks
64	Sustain Pedal	No	Yes 2)	
65	Portamento On/Off	No	Yes 2)	
66	Sostenuto	No	Yes 2)	
67	Soft Pedal	No	Yes 2)	
68	Legato Footswitch	No	No	
69	Hold 2	No	No	
70	Variation	No	No	
71	Timbre / Harmonic Intensity	No	Yes 2)	
72	Release Time	No	Yes 2)	
73	Attack Time	Yes	Yes 2)	
74	Brightness	No	Yes 2)	
75	Decay Time	No	Yes 2)	
76	Vibrato Rate	No	Yes 2)	
77	Vibrato Depth	No	Yes 2)	
78	Vibrato Delay	No	Yes 2)	
79	Sound Controller 10	No	No	
80	General Purpose Controller 5	No	No	
81	General Purpose Controller 6	No	No	
82	General Purpose Controller 7	No	No	
83	General Purpose Controller 8	No	No	
84	Portamento Control	No	Yes 2)	
85		No	Yes	Value>63 = Hold Pedal pressed
86		No	Yes	Value>63 = Chain Pedal pressed
87		No	No	
88		No	No	
89		No	No	
90		No	No	
91	Reverb Send Level	Yes	Yes 2)	
92	Effects 2 Depth	No	No	
93	Chorus Send Level	Yes	Yes 2)	
94	Effects 4 Depth	No	No	
95	Effects 5 Depth	No	No	
96	Data Increment	No	No	
97	Data Decrement	No	No	
98	Non-Registered Parameter Number (LSB)	Yes	No	
99	Non-Registered Parameter Number (MSB)	Yes	No	
100	Registered Parameter Number (LSB)	Yes	No	
101	Registered Parameter Number (MSB)	Yes	No	
102		No	Yes	Value>63 = Hold Pedal pressed
103		No	Yes	Value>63 = Chain Pedal pressed
104		No	No	
105		No	No	
106		No	No	
107		No	No	
108		No	No	
109		No	No	
110		No	No	
111		No	No	
112		No	No	
113		No	No	
114		No	No	
115		No	No	
116		No	No	
117		No	No	
118		No	No	
119		No	No	
120	All Sound Off	No	Yes 2)	
121	Reset All Controllers	No	Yes 2)	
122	Local Control On/Off	No	No	
123	All Notes Off	No	Yes 2)	
124	Omni Mode Off	No	No	
125	Omni Mode On	No	No	
126	Poly Mode Off	No	Yes 2)	
127	Poly Mode On	No	Yes 2)	

Table of implemented NRPN controllers

NRPN MSB (CC 0x63)	NRPN LSB (CC 0x62)	Data Entry MSB (CC 0x06)	Description	Compatible to Standard
0x01	0x08	0x40 -> no modif.	Vibrate rate modify	GS
0x01	0x09	0x40 -> no modif.	Vibrate depth modify	GS
0x01	0x0A	0x40 -> no modif.	Vibrate delay modify	GS
0x01	0x20	0x40 -> no modif.	TVF cutoff freq modify	GS
0x01	0x21	0x40 -> no modif.	TVF resonance modify	GS
0x01	0x63	0x40 -> no modif.	Env. attack time modify	GS
0x01	0x64	0x40 -> no modif.	Env. decay time modify	GS
0x01	0x66	0x40 -> no modif.	Env. release time modif	GS
0x18	rr	0x40 -> no modif.	Pitch coarse of drum instr. note rr in semitones 1)	GS
0x1A	rr	0x00 – 0x7F	Level of drum instrument note rr 1)	GS
0x1C	rr	0x00=left, 0x40=centre, 0x7F=right	Pan of drum instrument note rr 1)	GS
0x1D	rr	0x00 – 0x7F	Reverb send level of drum instrument note rr 1)	GS
0x1E	rr	0x00 – 0x7F	Chorus send level of drum instrument note rr 1)	GS
0x37	0x07	0x00 – 0x7F	Master Volume	
0x37	0x08	0x00=-12dB, 0x40=0dB, 0x7F=+12dB	Midi Equaliser Low band gain	
0x37	0x09	0x00=-12dB, 0x40=0dB, 0x7F=+12dB	Midi Equaliser Med1 band gain	
0x37	0x0A	0x00=-12dB, 0x40=0dB, 0x7F=+12dB	Midi Equaliser Med2 band gain	
0x37	0x0B	0x00=-12dB, 0x40=0dB, 0x7F=+12dB	Midi Equaliser High band gain	
0x37	0x0C	0x00=0Hz to 0x7F=1.25Khz	Midi Equaliser Low band freq	
0x37	0x0D	0x00=0Hz to 0x7F=1.4Khz	Midi Equaliser Med1 band freq	
0x37	0x0E	0x00=0Hz to 0x7F=1.4Khz	Midi Equaliser Med2 band freq	
0x37	0x0F	0x00=0Hz to 0x7F=5.2Khz	Midi Equaliser High band freq	
0x37	0x10	0x00 – 0x7F	Midi Equaliser Med1 band width	
0x37	0x11	0x00 – 0x7F	Midi Equaliser Med2 band width	
0x37	0x18	0x00 – 0x7F	Midi Master volume	
0x37	0x19	0x00=left, 0x40=centre, 0x7F=right	Midi Master pan	
0x37	0x1A	0x00=no send, 0x40=default, 0x7F=max	General Midi reverb send	
0x37	0x1B	0x00=no send, 0x40=default, 0x7F=max	General Midi chorus send	
0x37	0x55	bits 7.6: 0 bit 5: Reverb on/off bit 4: Chorus on/off bit 3.2: 0 bit 1: EQ2 bit 0: EQ1	Effects on/off EQ2=0, EQ1=0: equaliser off EQ2=1, EQ1=0: 2 band equaliser EQ2=1, EQ1=1: 4 band equaliser	
0x37	0x57	0x00 – 0x1F 0x20=all accepted	System Exclusive Device ID	

1) Drumset edit NRPN: 2 different drumset edit tables are implemented:

- 1 for channel 10
- 1 for channels 1-9 or 11-16: for all these channels, edit table is the same

MIDI SysEx Implementation

Format for AX 100 SysEx dumps (Local Mode = On):

0xF0,	SysEx status
0x00, 0x20, 0x36,	TerraTec ID
0x20, 0x00,	Model ID: AX 100
ah, am, al,	Address high, mid, low
ch, cm, cl,	Data byte count high 7 bits, mid 7 bits, low 7 bits
dh, dl	Data #0 high 7 bits, low 7 bits
...	Data ...
dh, dl	Data #n high 7 bits, low 7 bits
cc,	Checksum
0xF7	End of exclusive

Table of AX 100 SysEx dumps

Local mode = on

Address ah am al	Byte Count ch cm cl	Description	Received/ Transmitted
0x00 0x00 0x00	0x03 0x38 0x5C	Dump all data	R/T
0x00 0x00 0x01	0x03 0x06 0x00	Dump all presets	R/T
0x00 0x00 0x02	0x00 0x16 0x00	Dump all chain presets	R/T
0x00 0x00 0x03	0x00 0x04 0x00	Dump all arpeggio pattern	R/T
0x00 0x00 0x09	0x00 0x14 0x08	Dump all sequence (tracks/pattern)	R/T
0x00 0x00 0x0A	0x00 0x0C 0x00	Dump all sequence pattern	R/T
0x00 0x00 0x0B	0x00 0x08 0x00	Dump all sequence tracks	R/T
0x00 0x00 0x11	0x00 0x03 0x06	Dump edit preset	R/T
0x00 0x00 0x12	0x00 0x00 0x58	Dump edit chain	R/T
0x00 0x00 0x13	0x00 0x00 0x20	Dump arpeggio edit pattern	R/T
0x00 0x00 0x1A	0x00 0x00 0x30	Dump sequencer edit pattern	R/T
0x00 0x00 0x1B	0x00 0x00 0x80	Dump sequencer edit track	R/T
0x00 0x00 0x20	0x00 0x00 0x14	Dump global parameter	R/T
0x00 0x00 0x21	0x00 0x01 0x70	Dump CC defaults	R/T
0x00 0x00 0x22	0x00 0x00 0x50	Dump guitar parameter	R/T
0x00 0x00 0x23	0x00 0x02 0x00	Dump MIDI mapping	R/T
0x00 0x00 0x24	0x00 0x00 0x06	Dump sequencer globals	R/T
0x00 0x00 0x25	0x00 0x00 0x02	Firmware version number	T
0x00 0x00 0x26	0x00 0x00 0x06	Sequencer control command (for editor test mode only)	R
0x00 0x00 0x27	0x00 0x00 0x00	Lock device (when connected to editor)	R
0x00 0x00 0x28	0x00 0x00 0x00	Unlock device (when disconnected from editor)	R
0x00 0x01 nn	0x00 0x03 0x06	Dump preset #nn (nn = 0x00..0x7F)	R/T
0x00 0x02 nn	0x00 0x00 0x58	Dump chain preset #nn (nn = 0x00..0x1F)	R/T
0x00 0x03 nn	0x00 0x00 0x20	Dump arpeggio pattern #nn (nn = 0x00..0x0F)	R/T
0x00 0x0A nn	0x00 0x00 0x30	Dump sequence pattern #nn (nn = 0x00..0x1F)	R/T
0x00 0x0B nn	0x00 0x00 0x80	Dump sequence track #nn (nn = 0x00..0x07)	R/T
0xaa 0x4a 0xaa	0x00 0x00 0x00	Dump Request Combine bit 6 in "am" with any address to request a dump of this type	R

Format for GS Compatible SysEx commands

(Local Mode = Off)

0xF0,	SysEx status
0x41, id, 0x42,	GS Standard address. id=device ID, selected with NRPN 3757
0x12,	GS Standard data command
ah, am, al,	Address high, mid, low
vv, …, vv,	Value databytes
xx,	Don´t care
0xF7	End of exclusive

Table of GS Compatible SysEx commands

(Local Mode = Off)

Address (ah, am, al)	Databytes	Description
0x40 0x00 0x00	vv vv vv vv	Master tune (default vv = 0x00 0x04 0x00 0x00) -100.0 to +100.0 cents. Nibbelised data should be used (always four bytes). For example, to tune to +100.0 cents, sent data should be 0x00 0x07 0x0E 0x08
0x40 0x00 0x04	vv	Master volume (default vv = 0x7F) Not reset by GS reset.
0x40 0x00 0x05	vv	Master key-shift (default vv = 0x40, no transpose)
0x40 0x00 0x06	vv	Master pan (default vv = 0x40, centre)
0x40 0x00 0x7F	0x00	GS reset
0x00 0x00 0x7F	xx	GS reset
0x40 0x01 0x10	vv1 … vv16	Voice reserve : vv1= Part 10 (default vv = 2) vv2 to vv10 = Part 1 to 9 (default vv = 2) vv11 to vv16= Part 11 to 16 (default vv = 0)
0x40 0x01 0x30	vv	Reverb type (vv=0x00 to 0x07), default = 0x04 0x00 : Room1 0x01 : Room2 0x02 : Room3 0x03 : Hall1 0x04 : Hall2 0x05 : Plate 0x06 : Delay 0x07 : Pan delay
0x40 0x01 0x31	vv	Reverb character, default vv = 0x04
0x40 0x01 0x32	vv	Reverb Pre-LPF, 0 to 7, default vv = 0
0x40 0x01 0x33	vv	Reverb master level, default vv = 0x40
0x40 0x01 0x34	vv	Reverb time
0x40 0x01 0x35	vv	Reverb delay feedback. Only if reverb number=6 or 7 (delays)
0x40 0x01 0x38	vv	Chorus type (vv=0 to 7), default = 0x02 0x00 : Chorus1 0x01 : Chorus2 0x02 : Chorus3 0x03 : Chorus4 0x04 : Feedback 0x05 : Flanger 0x06 : Short delay 0x07 : FB delay
0x40 0x01 0x39	vv	Chorus Pre-LPF, 0 to 7, default vv = 0
0x40 0x01 0x3A	vv	Chorus master level, default vv = 0x40
0x40 0x01 0x3B	vv	Chorus feedback
0x40 0x01 0x3C	vv	Chorus delay
0x40 0x01 0x3D	vv	Chorus rate
0x40 0x01 0x3E	vv	Chorus depth
0x40 0x01 0x3F	vv	Chorus send level to reverb, default=0
0x40 0x1p 0x02	nn	MIDI channel to part assign p is part (0x0 to 0xF) nn is MIDI channel (0x00 to 0x0F, 0x10=OFF). This SYSEX allows to assign several parts to a single MIDI channel or to mute a part. Default assignment : part MIDI channel 0 9 (DRUMS) 1-9 0-8 10-15 10-15

Address (ah, am, al)	Databytes	Description
0x40 0x1p 0x15	vv	Part to rhythm allocation p is part (0x0 to 0xF) vv is 0x00 (sound part) or 0x01 (rhythm part). This SYSEX allows a part to play sound or drumset. There is no limitation of the number of parts playing drumset. Default assignment: part 0 plays drums (default MIDI channel 9) all other parts play sound.
In the following addresses, n is the MIDI channel (0x0 to 0xF)		
0x40 0x1n 0x40	vv1 ... vv12	Scale tuning vv1 to vv12 are 12 semitones tuning values (C, C#, D, ... A#, B) Range: -64 (0x00) … 0 (0x40) … +63(0x7F) cents. This SYSEX allows non chromatic tuning of the musical scale on a given MIDI channel. Default vv1, ... ,vv12 = 0x40 (chromatic tuning). Scale tuning has no effect if the part is assigned to a rhythm channel or if the sound played is not of chromatic type.
0x40 0x1n 0x1A	vv	Velocity slope from 0x00 to 0x7F (default = 0x40)
0x40 0x1n 0x1B	vv	Velocity offset from 0x00 to 0x7F (default = 0x40)
0x40 0x1n 0x1F	vv	CC1 Controller number (0x00-0x5F) (default = 0x10)
0x40 0x1n 0x20	vv	CC2 Controller number (0x00-0x5F) (default = 0x11)
0x40 0x2n 0x00	vv	Mod pitch control (-24,+24 semitone) (default = 0x40)
0x40 0x2n 0x01	vv	Mod tvf cutoff control (default = 0x40)
0x40 0x2n 0x02	vv	Mod Amplitude control (-100%-+100%) (default = 0x40)
0x40 0x2n 0x03	vv	Mod lfo1 rate control (default = 0x40) n is don't care. Rate is common on all channels
0x40 0x2n 0x04	vv	Mod lfo1 pitch depth (0-600 cents) (default = 0x0A)
0x40 0x2n 0x05	vv	Mod lfo1 tvf depth (default = 0)
0x40 0x2n 0x06	vv	Mod lfo1 tva depth (0-100%) (default = 0)
0x40 0x2n 0x10	vv	Bend pitch control (-24,+24 semitone) (default = 0x42)
0x40 0x2n 0x11	vv	Bend tvf cutoff control (default = 0x40)
0x40 0x2n 0x12	vv	Bend Amplitude control (-100%-+100%) (default = 0x40)
0x40 0x2n 0x14	vv	Bend lfo1 pitch depth (0-600 cents) (default = 0)
0x40 0x2n 0x15	vv	Bend lfo1 tvf depth (default = 0)
0x40 0x2n 0x16	vv	Bend lfo1 tva depth (0-100%) (default = 0)
0x40 0x2n 0x20	vv	CAF pitch control (-24,+24 semitone) (default = 0x40)
0x40 0x2n 0x21	vv	CAF tvf cutoff control (default = 0x40)
0x40 0x2n 0x22	vv	CAF Amplitude control (-100%-+100%) (default=0x40)
0x40 0x2n 0x24	vv	CAF lfo1 pitch depth (0-600 cents) (default = 0)
0x40 0x2n 0x25	vv	CAF lfo1 tvf depth (default = 0)
0x40 0x2n 0x26	vv	CAF lfo1 tva depth (0-100%) (default = 0)
0x40 0x2n 0x40	vv	CC1 pitch control (-24,+24 semitone) (default = 0x40)
0x40 0x2n 0x41	vv	CC1 tvf cutoff control (default = 0x40)
0x40 0x2n 0x42	vv	CC1 Amplitude control (-100%-+100%) (default=0x40)
0x40 0x2n 0x44	vv	CC1 lfo1 pitch depth (0-600 cents) (default = 0)
0x40 0x2n 0x45	vv	CC1 lfo1 tvf depth (default = 0)
0x40 0x2n 0x46	vv	CC1 lfo1 tva depth (0-100%) (default = 0)
0x40 0x2n 0x50	vv	CC2 pitch control (-24,+24 semitone) (default = 0x40)
0x40 0x2n 0x51	vv	CC2 tvf cutoff control (default = 0x40)
0x40 0x2n 0x52	vv	CC2 Amplitude control (-100%-+100%) (default = 0x40)
0x40 0x2n 0x54	vv	CC2 lfo1 pitch depth (0-600 cents) (default = 0)
0x40 0x2n 0x55	vv	CC2 lfo1 tvf depth (default = 0)
0x40 0x2n 0x56	vv	CC2 lfo1 tva depth (0-100%) (default = 0)

Patch list

PRG	BNK	Name	Voices	Typ	Notes
0	0	Grand Piano	1	GM	
0	1	Grand Piano Wide	1	XG	
0	18	Grand Piano Mellow	1	XG	
0	40	Grand Piano & Strings	2	XG	
0	41	Dream Piano	3	XG	
0	50	Grand Piano & StereoStrings	3	TT	
1	0	Bright Piano	1	GM	
1	1	Bright Piano Wide	1	XG	
1	50	The Grand Opener	5	TT	
2	0	Electric Grand	1	GM	
2	1	Electric Grand Wide	1	XG	
2	32	Electric Grand Detuned	2	XG	
2	40	Electric Grand & Piano	2	XG	
2	41	The Big Stage	2	XG	
3	0	Honky Tonk	2	GM	
3	1	Honky Tonk Wide	2	XG	
4	0	Electric Piano 1	1	GM	
4	1	Electric Piano 1 Wide	1	XG	
4	18	Electric Piano Mellow	2	XG	
4	32	Electric Piano 1 Chorus	2	XG	
4	40	Electric Piano 1 Hard	1	XG	
4	45	Electric Piano VX	2	XG	
4	50	Electric Piano 1 Tremolo	2	TT	
4	51	Electric Piano 1 SlowTremolo	2	TT	
4	52	Electric Piano 1 & WarmPad	3	TT	
4	64	60's EP	3	TT	
5	0	Electric Piano 2	2	GM	
5	1	Electric Piano 2 Wide	2	XG	
5	32	Electric Piano 2 Chorus	2	XG	
5	33	Electric Piano 2 Hard	2	XG	
5	34	Electric Piano 2 Legend	2	XG	
5	40	Electric Piano 2 Phase	2	XG	
5	41	Electric Piano 2 & WarmPad	4	XG	
5	42	Electric Piano 2 & Koto	3	XG	
5	45	Electric Piano 2 VX	1	XG	
5	50	Foster On Stage	4	TT	
6	0	Harpsichord	2	GM	
6	1	Harpsichord Wide	2	XG	
6	25	Harpsichord 2	3	XG	
6	35	Harpsichord 3 Modern	3	XG	
7	0	Clavichord	2	GM	
7	1	Clavichord Wide	2	XG	
7	27	Clavichord Wha	2	XG	
7	50	Hammer Clav	2	TT	
7	51	DX Clav	2	TT	
7	52	Mouth Clav	2	TT	
7	64	Synthochord	2	XG	
7	65	Clavichord Pierce	2	XG	
8	0	Celesta	2	GM	
8	50	Celesta UnderWater	2	TT	
9	0	Glockenspiel	2	GM	
10	0	MusicBox	2	GM	
10	64	MusicBox Organ	2	XG	
11	0	Vibes	1	GM	
11	1	Vibes Wide	2	XG	
11	45	Vibes Hard	3	XG	
12	0	Marimba	2	GM	
12	1	Marimba Wide	2	XG	
12	64	Marimba Sine	2	XG	
12	97	Balafon	1	XG	
12	98	Log Drum	2	XG	
13	0	Xylophon	1	GM	
14	0	Tubular Bells	1	GM	
14	96	Church Bell	2	XG	
14	97	Carillon	2	XG	
15	0	Dulcimer	2	GM	
15	35	Dulcimer 2	2	XG	
15	96	Gipsy Pick	3	TT	
15	97	Santur	4	XG	
16	0	Drawbar Organ 1	2	GM	
16	32	Drawbar Organ Detuned	2	XG	
16	33	60's Organ 1	2	XG	
16	34	60's Organ 2	2	XG	
16	35	70's Organ 1	2	XG	
16	36	OctaSwell	2	XG	
16	37	60's Organ 3	2	XG	
16	38	EventBar	2	XG	
16	40	Dave's Road	3	TT	
16	64	Organ Bass	2	XG	
16	65	Wallace Organ	2	TT	
16	66	Jahrmarkt	2	TT	
16	67	Drawbar Organ 3	2	XG	
17	0	Percussive Organ 1	1	GM	
17	24	Percussive Organ Rotary	2	TT	
17	32	Percussive Organ Detuned	2	XG	
17	33	Percussive Organ Lite	1	XG	
17	37	Percussive Organ 2	2	XG	

PRG	BNK	**Name**	Voices	Typ	Notes
17	50	Play House C0	4	TT	Split D0 / D#0
17	51	Short Reggae	1	TT	
18	0	Rock Organ	2	GM	
18	50	Rotary Swell	3	TT	
18	64	Rock Rotary	2	XG	
18	65	Rock Rotary Slow	3	XG	
18	66	Rock Rotary Fast	3	XG	
19	0	Church Organ	2	GM	
19	32	Church Organ Detuned	2	XG	
19	35	Church Organ Octave	2	XG	
19	40	Notre Dam	3	XG	
19	50	Hitchcock Organ	4	TT	
19	64	Organ Flute	3	XG	
19	65	Organ Flute Tremolo	3	XG	
20	0	Reed Organ	2	GM	
20	40	Puff Organ	3	XG	
21	0	Accordion	3	GM	
21	32	AccordIt	3	XG	
22	0	Harmonica	1	GM	
22	32	Harmonica 2	2	XG	
23	0	Bandoneon	3	GM	
23	64	Bandoneon 2	3	XG	
24	0	Nylon Guitar	1	GM	
24	16	Nylon Guitar 2	2	XG	
24	25	Nylon Guitar 3	1	XG	
24	43	Nylon Guitar Wide	2	TT	
24	50	Nylon Guitar & WarmPad	4	TT	
24	51	Ocean Memories	4	TT	from A5 sea gulls
24	96	Ukunjo	1	TT	
25	0	Steel Guitar	2	GM	
25	16	Steel Guitar 2	2	XG	
25	35	12-String Guitar	2	XG	
25	40	Nylon & Steel	2	XG	
25	59	Mono Steel	2	TT	
25	96	Mandolin	2	XG	
26	0	Jazz Guitar	2	GM	
26	18	Mellow Guitar	2	XG	
26	32	Jazz Guitar Amp	3	XG	
26	50	Jazz Bend	4	TT	
26	59	Mono Jazz	1	TT	
27	0	Clean Guitar	2	GM	
27	32	Clean Guitar Chorus	2	XG	
28	0	Mute Guitar	2	GM	
28	40	Funk Guitar 1	2	XG	
28	41	Mute Steel Guitar	2	XG	
28	43	Funk Guitar 2	4	XG	
28	45	Velo MuteClean	4	XG	
28	50	Muted Wah	2	TT	
29	0	Overdrive	2	GM	
29	43	Guitar Pinch	3	XG	
30	0	Distortion Guitar	1	GM	
30	40	Feedback Guitar 1	2	XG	
30	41	Feedback Guitar 2	2	XG	
31	0	Guitar Harmonics	1	GM	
31	65	Guitar Feedback	1	XG	
31	66	Feedback World	2	TT	
32	0	Acoustic Bass	2	GM	
32	40	Jazz Rhythm	3	XG	
32	50	The Jazz Trio	5	TT	Split F2 / F#2
33	0	Finger Bass	1	GM	
33	18	Finger Bass Dark	1	XG	
33	27	Flange Bass	1	XG	
33	40	Bass & Distortion Guitar	2	XG	
33	43	Finger Slap	2	XG	
33	45	Finger Bass 2	2	XG	
33	50	Finger Combo	3	TT	
34	0	Pick Bass	1	GM	
34	28	Muted Pick Bass	1	XG	
35	0	Fretless	2	GM	
35	27	Fretless Reso	2	TT	
35	32	Fretless 2	2	XG	
35	35	Fretless Octave	2	TT	
35	50	Warm Combo	4	TT	Split E2 / F2
35	59	Mono Fretless	1	TT	
35	96	SynFretless	2	TT	
36	0	Slap Bass 1	1	GM	
36	27	Slap Bass Reso	1	XG	
36	32	Punch Thumb	1	XG	
37	0	Slap Bass 2	1	GM	
37	43	Slap Bass 2 Velo	1	XG	
38	0	Synth Bass 1	1	GM	
38	18	Synth Bass 1 Dark	1	XG	
38	20	Synth Bass 1 Fast Reso	1	XG	
38	24	Acid Bass	1	XG	
38	35	Whoop Bass	2	TT	
38	40	SID Bass	2	TT	
38	64	Distorante B.	2	TT	
38	65	Square Bass	1	XG	
38	66	Gummy Bass	2	TT	
38	96	Hammer Bass	3	TT	
39	0	Synth Bass 2	1	GM	

PRG	BNK	Name	Voices	Typ	Notes
39	6	Synth Bass 2 Mellow	2	XG	
39	12	Seq Bass	2	XG	
39	18	Smack Bass	1	TT	
39	19	Dark Bass	1	TT	
39	32	Smooth Flange	2	TT	
39	40	Mellow Drone	2	TT	
39	41	DX Bass	1	XG	
39	64	X-Wire Bass	2	XG	
40	0	Violin	1	GM	
40	8	Slow Violin	1	XG	
41	0	Viola	1	GM	
42	0	Cello	1	GM	
43	0	Contrabass	1	GM	
44	0	Tremolo Strings	2	GM	
44	8	Slow Tremolo Strings	2	XG	
44	40	Tremolo Concerto	4	TT	
45	0	Pizzicato Strings	2	GM	
45	50	Pizzicato & Strings	4	TT	
46	0	Harp	1	GM	
46	40	Yangqin	1	XG	
46	50	Enya's Garden	6	TT	
46	51	Eden's Garden	5	TT	
46	52	Harp Wide & Bright	2	TT	
47	0	Timpani	1	GM	
47	50	Timpani Wide	1	TT	
47	51	Comical Timpani	2	TT	
48	0	Strings	2	GM	
48	3	Strings Wide Pan	2	XG	
48	8	Crescendo Strings	2	XG	
48	24	Arco Strings	2	XG	
48	35	60'ies Strings Mellotron	2	XG	
48	40	Orchstra	3	XG	
48	42	Tremolo Orchestra	5	XG	
48	45	Velo Strings	4	XG	
48	50	Battle For Troy	6	TT	
49	0	Slow Strings	2	GM	
49	3	Slow Strings Wide Pan	2	XG	
49	8	Unreleased Strings	2	TT	
49	40	Warm Strings	2	XG	
49	50	Century Strings	3	TT	
49	64	Seventies Strings	3	XG	
49	65	String Ensemble 3	3	XG	
50	0	Synth Strings 1	2	GM	
50	27	Synth Strings Reso	2	XG	
50	50	FiftyFifty Synth Strings	2	TT	
50	64	Synth Strings 4	4	XG	
50	65	5th Synth Strings	2	TT	
51	0	Synth Strings 2	2	GM	
52	0	Choir Aah	2	GM	
52	3	Choir Aah Wide Pan	2	XG	
52	16	Choir Aah 2 Warm	4	TT	
52	32	Mellow Choir	2	XG	
52	40	Choir Strings	4	XG	
52	50	Wuah Choir	2	TT	
53	0	Voice Ooh	2	GM	
53	50	Voice Dope	2	TT	
53	51	Doopimba	4	TT	
54	0	SynVox	2	GM	
54	40	SynVox 2	3	XG	
54	41	Choral	4	XG	
54	50	Angels Swirls	3	TT	
54	51	Bubble Voice	4	TT	
54	64	AnaVoice	1	XG	
55	0	Orchestra Hit	1	GM	
55	35	Orchestra Hit 2	2	XG	
55	64	Impact	5	TT	
56	0	Trumpet	1	GM	
56	16	Trumpet Duo	2	TT	
56	17	Trumpet Combo	4	TT	
56	32	Warm Trumpet	1	XG	
57	0	Trombone	1	GM	
57	18	Trombone 2	1	XG	
58	0	Tuba	1	GM	
58	16	Tuba Duo	2	TT	
59	0	Mute Trumpet	1	GM	
59	50	Mute Duo	2	TT	
60	0	French Horns	2	GM	
60	6	French Horn Solo	1	XG	
60	32	French Horns 2	2	XG	
60	37	Horn Orchestra	2	XG	
61	0	Brass Section	2	GM	
61	35	Trumpet & Trombone Section	4	XG	
61	40	Brass Section 2	3	XG	
61	41	Eurovision	4	TT	
61	42	Mellow Brass	4	XG	
62	0	Synth Brass 1	2	GM	
62	12	Quack Brass	2	XG	
62	20	Reso Synth Brass	2	XG	
62	24	Poly Brass	2	XG	
62	27	Synth Brass 3	3	XG	
62	32	Oberheim	4	XG	

PRG	BNK	Name	Voices	Typ	Notes
62	45	Ana Velo Brass	2	XG	
62	64	Ana Brass 1	4	XG	
63	0	Synth Brass 2	2	GM	
63	18	Soft Brass	3	XG	
63	40	Synth Brass 4	4	XG	
63	41	Choir Brass	4	XG	
63	45	Velo Brass 2	4	XG	
63	52	Bad Analog Horn	2	TT	
63	64	Ana Brass 2	4	XG	
64	0	Soprano Sax	2	GM	
65	0	Alto Sax	1	GM	
65	40	Sax Section	3	XG	
65	43	Hyper Alto	2	XG	
66	0	Tenor Sax	1	GM	
66	40	Breath Tenor Sax	1	XG	
66	41	Soft Tenor	1	XG	
66	64	Tenor Section	3	XG	
67	0	Bariton Sax	2	GM	
68	0	Oboe	1	GM	
69	0	English Horn	1	GM	
70	0	Bassoon	1	GM	
71	0	Clarinet	1	GM	
72	0	Piccolo	2	GM	
73	0	Flute	2	GM	
74	0	Recorder	1	GM	
75	0	Pan Flute	1	GM	
76	0	Bottle	1	GM	
77	0	Shakuhachi	2	GM	
78	0	Whistle	2	GM	
79	0	Ocarina	1	GM	
80	0	Square Lead	2	GM	
80	6	Square Lead 2	1	XG	
80	8	Lyles Three Voice	3	XG	
80	18	Hollows	3	XG	
80	19	Munch Square	3	TT	
80	50	Square Trip	4	TT	
80	51	Future Square	1	TT	
80	64	Percussive Square	1	TT	
80	65	Solo Sine	1	XG	
80	66	Sine Lead	2	XG	
81	0	Saw Lead	2	GM	
81	6	Saw 2	1	XG	
81	8	Comic Saw	2	TT	
81	18	Dyna Saw	1	XG	
81	19	I Speak FM	2	XG	
81	20	Big Lead	4	TT	
81	24	Heavy Synth	3	TT	
81	25	Simple Moog	1	TT	
81	40	Variation Lead	3	TT	
81	41	Doctor Lead	2	XG	
81	45	Velo Fifth Lead	3	TT	
81	50	Unheil	7	TT	
81	51	Cinema Scope	9	TT	
81	52	Night Lead	4	TT	
81	96	Seq Ana	2	TT	
82	0	Calliope	2	GM	
82	65	Desert Calliope	2	TT	
83	0	Chiffer Lead	2	GM	
83	64	Rubby	2	XG	
84	0	Charang Lead	2	GM	
84	50	Dewire Lead	2	TT	
84	64	Dist Lead	3	XG	
84	65	Wire Lead	4	XG	
85	0	Solo Vox	2	GM	
85	24	Synth Aah	1	XG	
85	64	Vox Lead	3	TT	
86	0	Fifth Lead	3	GM	
86	35	The Source	2	TT	
87	0	Bass & Lead	2	GM	
87	16	Big & Low	3	XG	
87	64	Fat & Perky	3	XG	
87	65	Soft Wurly	3	TT	
88	0	Fantasia 1	3	GM	
88	64	Fantasia 2	3	XG	
89	0	Warm Pad	2	GM	
89	16	Thick Pad	3	XG	
89	17	Soft Pad	2	XG	
89	18	Sine Pad	2	XG	
89	50	Super Analogue	4	TT	
89	64	Horn Pad	4	XG	
89	65	Silona Pad	4	TT	
90	0	Poly Synth Pad	2	GM	
90	64	Poly Pad 80	2	XG	
90	65	Click Pad	3	TT	
90	66	Ana Pad	2	XG	
90	67	Square Pad	3	XG	
91	0	Space Voice	3	GM	
91	50	Cold Space	3	TT	
91	51	Cool Choir	3	TT	
91	64	Heaven 2	3	XG	
91	66	Itopia	4	XG	

PRG	BNK	Name	Voices	Typ	Notes
91	67	CC Pad	3	XG	
92	0	Bowed Glass	2	GM	
92	50	Alaska Flares	5	TT	
92	64	Glacier	2	XG	
92	65	Glass Pad	3	XG	
93	0	Metallic Pad	3	GM	
93	64	Tine Pad	4	XG	
93	65	Pan Pad	4	XG	
94	0	Halo Pad	3	GM	
95	0	Sweep Pad	2	GM	
95	20	Shwimmer	2	XG	
95	27	Converge	2	XG	
95	64	Polar Math. Pad	2	XG	
95	66	Celestial	4	XG	
96	0	Ice Rain	3	GM	
96	45	Clavi Pad	2	XG	
96	50	Clavi Pad Mono	1	TT	
96	64	Harmo Rain	3	XG	
96	65	African Waterfalls	3	TT	
96	66	Caribean	3	XG	
97	0	Soundtrack	2	GM	
97	27	Prologue	2	XG	
97	50	Analog Soundtrack	4	TT	
97	64	AnceString	2	XG	
98	0	Crystal	3	GM	
98	12	Synth Drum Cmp	3	XG	
98	14	Popcorn	1	XG	
98	18	Tiny Bell	2	XG	
98	35	Round Clock	2	XG	
98	40	Glock China	2	XG	
98	41	Clear Bell	2	XG	
98	42	Choir Bell	3	XG	
98	50	Kuibono	3	TT	
98	64	Synth Mallet	1	XG	
98	65	Soft Crystal	3	XG	
98	66	Loud Glock	2	XG	
98	67	Xmas Bell	2	XG	
98	68	Vibe Bell	2	XG	
98	69	Babybel :0)	3	TT	
98	70	Air Bells	3	XG	
98	71	Bell Harp	3	XG	
98	72	Gamelimba	3	XG	
99	0	Atmosphere	3	GM	
99	18	Warm Atmos	3	XG	
99	19	Hollow Rise	2	XG	
99	40	Nylon EP	2	XG	
99	50	Plasticman	3	TT	
99	64	Nylon Harp	2	XG	
99	65	Harp Vox	3	XG	
99	66	Atmos Pad	4	XG	
99	67	Planet	3	XG	
100	0	Brightness	3	GM	
100	64	Fanta Bell	3	XG	
100	96	Smokey	2	XG	
101	0	Goblins	2	GM	
101	50	Vectormorph	4	TT	
101	64	Goblin Syn	2	XG	
101	65	50's SciFi	2	XG	
101	66	Ring Pad	3	XG	
101	67	Ritual	2	XG	
101	68	To Heaven	3	XG	
101	70	Night	5	XG	
101	71	Glisten	4	XG	
101	96	Bell Choir	4	XG	
102	0	Echo Drops	2	GM	
102	8	Echo Pad Slow	3	TT	
102	14	Echo Pan	3	XG	
102	64	Echo Bell	2	XG	
102	65	Big Pan	2	XG	
102	66	Synth Piano	3	XG	
102	67	Creation	3	XG	
102	68	Stardust	2	XG	
102	69	Reso Pan	2	XG	
103	0	Star Theme	2	GM	
103	64	Starz	3	XG	
104	0	Sitar	2	GM	
104	32	Detuned Sitar	2	XG	
104	35	Sitar 2	3	XG	
104	96	Sitar 3	1	XG	
104	97	Tamboura	3	XG	
105	0	Banjo	1	GM	
105	28	Mute Banjo	1	XG	
105	50	Gopichant 2	2	TT	
105	96	Rabab	2	XG	
105	97	Gopichant	2	XG	
105	98	Oud	2	XG	
106	0	Shamisen	1	GM	
106	50	Berim Tao	4	TT	
107	0	Koto	2	GM	
107	96	T.Koto	3	XG	
107	97	Kanoon	3	XG	

PRG	BNK	**Name**	Voices	Typ	Notes
108	0	Kalimba	2	GM	
109	0	Bagpipe	3	GM	
110	0	Fiddle	1	GM	
111	0	Shanai	1	GM	
111	64	Shanai 2	1	XG	
111	96	Pungi	1	XG	
111	97	Hichriki	2	XG	
112	0	Tinkle Bell	2	GM	
112	96	Bonang	2	XG	
112	97	Gender	2	XG	
112	98	Synth Gamelan	2	TT	
112	99	Slow Synth Gamelan	3	TT	
112	100	Rama Cymbal	2	XG	
112	101	Asian Cymbal	2	XG	
113	0	Agogo	2	GM	
114	0	Steel Drum	2	GM	
114	97	Glass Percussion	3	TT	
114	98	Thai Bell	3	XG	
115	0	Wood Block	1	GM	
115	96	Castanet	1	XG	
116	0	Taiko Drum	2	GM	
116	96	Grand Cassa	1	XG	
117	0	Melodic Tom	1	GM	
117	64	Melodic Tom 2	2	XG	
117	65	Real Tom	1	XG	
117	66	Rock Tom	3	XG	
118	0	Synth Drum	2	GM	
118	64	Ana Tom	1	XG	
118	65	Electronic Percussion	3	XG	
119	0	Reverse Cymbal	2	GM	
120	0	Fret Noise	1	GM	
121	0	Breath Noise	1	GM	
122	0	Seashore	2	GM	
122	50	Sea Gulls	1	TT	
122	51	Space Storm	2	TT	
123	0	Birds	2	GM	
124	0	Telephone	2	GM	
125	0	Helicopter	2	GM	
126	0	Applause	2	GM	
127	0	Gunshot	2	GM	
127	2	Laser Gun	1	GS	
127	50	Burr's Easy Kit	1	TT	
0	x	Standard Kit	1	GS	
8	x	Room Kit	2	GS	
16	x	Power Kit	2	GS	
24	x	Electro Kit	2	GS	
25	x	Analog Kit	2	GS	
28	x	TR-808 Kit	2	TT	
29	x	TR-909 Kit	2	TT	
32	x	Jazz Kit	1	GS	
40	x	Brush Kit	1	GS	
48	x	Orchestra Kit	1	GS	
50	x	Burr's Easy Kit	1	TT	
126	x	SFX Kit	2	GS	

Parameter Overview

GLOBAL	BASIC CHANNEL	1 - 16		
	HOLD CHANNEL	1 - 16		
	SEQ CHANNEL	1 - 16		
	SEQPORTS	MIDI, SOUNDB, MIDI+SB, NONE		
	PBEND RANGE	OFF, 1 - 24		
	SND PBENDRG	ON, OFF		
	LOCAL MODE	ON, OFF		
	TUNE BASE	-99 - +99	PICK THE OPEN A STRING	
	GUITAR NO.	1 - 8	TYP	GUIT, BASS, VIOLIN, CELLO
			PICKUP	MAGNETIC, PIEZO
			NOTE OFF LIMIT	2 - 30
			TRIG. LEVEL	0 - 9
			GUIT. TUNE (6-1)	+/- 3 Octaves
			SENSE (E6 - E1)	8 - 64
			WHEELCNTRL	ON, OFF
	PEDALSENS	EXP 1, EXP 2	SET PEDAL TO MIN -> ENTER	
			SET PEDAL TO MAX -> ENTER	
	CC DEFAULTS	MIDI CC#0 - CC#119		
	MIDI MAPPING	Map MIDI X to Preset X		

UTILITY	DISPLAY	TUNING, LEVEL		
	SOUNDNAMES	NUM, GM, WXT		
	DCLIC RESPNS	1 - 20		
	XMIT SYSEX	TOTAL DUMP		
		PRESET	ALL, 1 - 128	
		CHAIN	ALL, 1 - 32	
		ARP-PATTERN	ALL, 1 - 16	
		SEQUENC	ALL, PATTRN, TRACKS	
	RECEIVE SYSEX	ON, OFF		
	EDIT SEQUENCE	TEMPO	EXT., 41 - 240	
		VOLUME	0 - 127	
		PANORAMA	L15 - R15	
		REVERB SEND	0 - 127	
		CHORUS SEND	0 - 127	
		MODE	PATTERN, TRACK	
		PATTERN	1 - 32	KIT / Select Drumkit
				STEPS / 1 - 16
				Instrument 1 / Edit Sequence
				Instrument 2 / Edit Sequence
				Instrument 3 / Edit Sequence
				Instrument 4 / Edit Sequence
		TRACK	1 - 8	ST (Step) / 0 - 31
				C (Count) / 0 - 127
				PT (Pattern) / 1 - 32
	ADC MON			

CHAIN	Edit Chain Name
	Select Preset
	Select Step

PRESET	Select Splitzone	EDIT LAYER	Select SOUND		
			PROGRAM SEND	ON, OFF	
			MIDICHANNEL	B/H, 1-16	
			PORTS	MIDIOUT, SOUNDB., MIDIOUT+SB, NONE	
			VOLUME	OFF, 0 - 127	
			TRANSPOSE	-36 - +36	
			QUANTIZE	AUTO, OFF, ON, TRIGGER	
			PAN POS	L15 - R15	
			PAN SPREAD	-15 - +15	
			REVERB	OFF, 0 - 127	
			CHORUS	OFF, 0 - 127	
			ATTACKTIME	OFF, 0 - 127	
			VEL SENSE	0 - 127	
			VEL OFFSET	-64 - +63	
			PICK CONTROL	Select Controller	NONE, CC#0 - CC#119
				PICK VAL1	0 - 127
				PICK VAL2	0 - 127
		NUM. OF LAYERS	1 - 4 (depending on split)		
	STRING SPLIT	1 - 5			
	FRET SPLIT	0 - 23			
	PICK SPLIT1	0 - 99			
	PICK SPLIT2	0 - 99			
	Edit NAME				
	GUIT.NO	GLOBAL, 1 - 8			
	STRING MODE	SEP, COM			
	HOLDMD	COMMON			
		SEP	Select Preset	1 - 256	
			VOLUME	OFF, 0 - 127	
			SEQ PATTERN	OFF, 1 - 32	
			SEQ TRACK	OFF, 1 - 8	
			SEQ TEMPO	EXT., 41 - 240	
		LAYER	Select Preset	1 - 256	
			VOLUME	OFF, 0 - 127	
			SEQ PATTERN	OFF, 1 - 32	
			SEQ TRACK	OFF, 1 - 8	
			SEQ TEMPO	EXT., 41 - 240	
		ARPEG	Select Preset	1 - 256	
			TEMPO	EXT., 41 - 240	
			LENGTH	1 - 32	
			SCAN	ASSIGN, REVERS, ...	
			PATRN	1/16, 1/8, 1/4,...	Edit Pattern
			SYNC	ON, OFF	
			OCTAVES	1 - 4	
			REPEATS	1 - 32	
			VELOCITY	OFF, 0 - 127	
			SEQ PATTERN	OFF, 1 - 32	
			SEQ TRACK	OFF, 1 - 8	
		CNTRL	Select Controller	MIDI CC#0 - CC#119	
			SEQ PATTERN	OFF, 1 - 32	
			SEQ TRACK	OFF, 1 - 8	
			SEQ TEMPO	EXT., 41 - 240	
		STACK	Select Preset	1 - 256	
			VOLUME	OFF, 0 - 127	
			SEQ PATTERN	OFF, 1 - 32	
			SEQ TRACK	OFF, 1 - 8	
			SEQ TEMPO	EXT., 41 - 240	
	WHEELCNTL	AIX	MIDI CC#0 - CC#119		
		EXP1	MIDI CC#0 - CC#119		
		EXP2	MIDI CC#0 - CC#119		
	NRPN/RPN	NONE			
		NRPN	00h - 7Eh		
		RPN	00h - 7Eh		
	FINGER PICK	ON, OFF			
	MIDITUNE 6-1	+/- 3 Octaves			