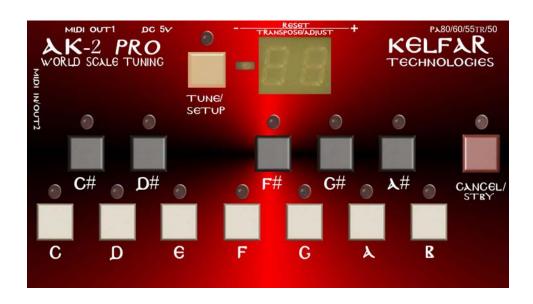
AK-2 PRO World Scale Tuning SETUP GUIDE



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AK-2 PRO WORLD SCALE TUNING SETUP GUIDE V2.8

AK-2 Pro World Scale Tuning is a MIDI device that converts a wide range of synthesizers to a specific Scale Tuning. It can adjust the pitch of each note in the octave (C to B) to -64 to +63 cents.

Key Benefits

- AK-2 Pro can be connected simultaneously to two synthesizers via the two MIDI_OUTS (Primary and Secondary)
- AK-2 Pro works on most MIDI synthesizers (i.e. Yamaha, Roland, Korg, Ketron, and Kurzweil)
- AK-2 Pro works on most Midi synthesizers that support Pitch Bend midi data Monophonic and **Polyphonic* (NEW FEATURE)
- Transpose buttons for Korg Triton series, Fantom x, Korg Pa series, Ketron, Yamaha, and Keyboards with GM/GM2/XG logo

*Polyphonic in Multitimbral

Supported Instruments/Models:

Korg Pa80, Pa50, Pa60, Pa55Tr, Pa1&2x (Pro), Pa800, Pa3x series, Pa500, P500 ORT, Pa600, Pa600QT, Triton Classic, Karma, Studio, Extreme, Le, Tr, Micro X, X50, Kronos series (with firmware 2.3 and up), *M3 series, *Oasys, *Trinity, Korg Z1, and Korg Prophecy. *Trinity series works in all modes, except the MOSS mode.

Roland Fantom S, X, G, AX-Synth Shoulder Synthesizer (with firmware 2.6 and up), and models with GS logo

Yamaha Motif ES/ MO (preset scale only - Arabic 2) and instruments with XG logo, Tyros/Psr series, Motif XS (Voice,Song,Pattern), and Motif XF (Voice,Song,Pattern)

Ketron VEGA, SD5, SD1, and AUDYA series

Kontakt with a provided script - Kontakt Script (Native Instruments)

Kurzweil K2600 and K2000 series

MOOG Sub Phatty and Sub 37 (AK-2 FIRMWARE 2.7 and up)

World Scales Support (-64 cents to +64 cents)

Equal Tempered Tuning System

Micro Tuning System via User-Programmable Scales

Turkish (Byselik, Rast, Ussak, Nikirz, Saba, Huazm, Siga, and more)

Byzantine (Modes 1,2,3,4,5,6,7,and 8)

Arabic (Bayati, Rast, Siga, Huseini, Hijaz, amd more)

Persian, Kurdish, and Syrian

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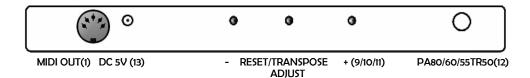
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AK-2 PRO WORLD SCALE TUNING SETUP GUIDE V2.8

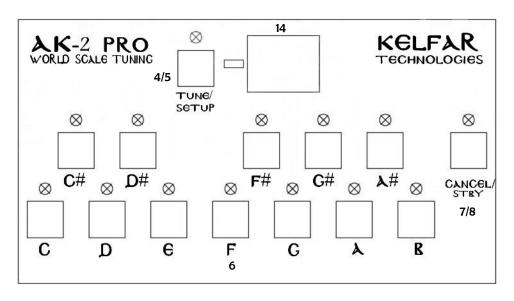
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Rear Panel



Front Panel



Left Side Panel



Basic Unit Functions

- 1. **Midi Out 1** (rear) Primary Instrument midi connection. (*Standard mode*)
- 2. Midi Out 2 (left side) Secondary Instrument midi connection. (Standard mode)
- 3. **Midi In** (left side) Enabled for the Universal Mode. (*Universal mode*)
- 4. **Tune**/Setup (front) Selectable User Scales (**User 00 to User 09**)
- 5. Tune/Setup (front) Programmable User Scales (User 01 to User 09)
- 6. **Buttons** (**C-B**) (front) LED indicators above each denote: Enabled (**LED On**)

or Disabled (LED Off) 7. Cancel (front) - Resets the pitch of each note to 00 Cents 8. STBY (front) - Power the AK2 Pro off (Standby mode) 9. Reset (rear) – Use to return functions to original settings (red) 10. Transpose (rear) - Transposes in Chromatic steps (-12 to +12) via Plus (+) and Minus (-) buttons (black) 11. Adjust (rear) - Plus (+) and Minus (-) buttons (black) 12. Korg Pa80, 60, 55Tr connector (rear) – input connection for listed Korg keyboards 13. Power supply connector (rear) - 5vDC 14. Display screen (front) - (2 digits) and minus sign (LED)
User-Programmable Functions
A. Initial Setting and Viewing Instrument Selections on power-up
Primary Instrument:
 Brand shown on Table of Key Values below using keys indicated. LED Display shows 2. Model shown beneath Brand on table using keys indicated. LED Display shows P2
Secondary Instrument:
 Brand shown on table using keys indicated. LED Display shows 2. Model shown beneath Brand on table using keys indicated. LED Display shows 2.
User Scales:
1. User Scale LED Display shows
Note: In Universal Mode 1 to 4. The Display shows P or P2 or P3 or P4
B. Changing Programming/Selecting the Primary & Secondary Instruments
Press both the CANCEL/STBY and TUNE/SETUP buttons

> Primary Instrument

Values below

LED Display shows

CANCEL/ TUNE/ STRY SETUP

1. Press appropriate key to select the Brand of the instrument as shown on Table of Key

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LED Display shows 2. Press appropriate key to select the specific Model of the instrument. Secondary Instrument
 After programming the Primary Instrument. LED Display shows
Note: After pressing CANCELISTBY the LED will turnRED. After successfuly inputting the new settings, the LED will return to GREEN.
C. Programming MIDI OUT 1 or 2
➤ Programming MIDI OUT 1 / Primary Instrument:
1. Press both the cancel/stby and tune/setup buttons LED Display shows
2. Press key to select the Brand of instrument.
LED Display shows
3. Press any key to select the instrument Model.
LED Display shows 5 4. Press the CANCEL/STBY
LED Display shows
5. AK2 Pro will reboot
► Programming MIDI OUT 2/Secondary Instrument:
1. Press both the cancel/stby and tune/setup buttons
LED Display shows
2. PTess cancel/stby again
LED Display shows 5 1
3. Press key to select instrument Brand.
LED Display shows 52 4. Press key to select instrument Model.
LED Display shows
5. AK2 Pro will reboot

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Table of Key Values (supported brands and models)

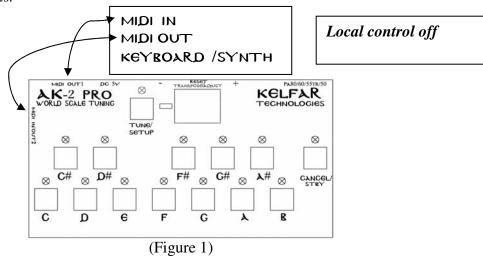
	C	C#	D	D#	E	F	F#	G	G#
BRAND	Korg	Yamaha	Kurzweil	Roland GS	Ayoub	Ketron	Native Instruments	MOOG	Universal mode
С	Pa1x/Pa800/ 500/Pa2x/ Pa3x	Motif-ES (Voice, pattern and song mode only)	Kurz	16CH GM2 Transpose	1CH	16CH	Kontakt2 16Ch	Sub Phatty and Sub 37	*Mode 1, 2 CH, Fine Tune
C#	Pa80/50/55T R/60	XG/1CH(Repeat mode)		16CH Roland Transpose	16CH				*Mode 2, 2 CH P.Bend
D	Triton_Le/Tr	XG: 16CH XG TRANSPOSE		AX-Synth					**Mode 3, 1 CH, Mono, P. Bend
D#	Triton_ Extreme/ Studio	XG: 16CH GM TRASNPOSE							***Mode 4, 12 CH, P. Bend
Е	Triton Karma	Tyros/Psr series							
F	Triton Classic	Motif XF voice song pattern							
F#	micro X / X50	Motif XS voice song pattern							
G	Korg M3								
G#	Trinity								
A	Korg Z1								
A#	Korg Kronos								
В	Korg Prophecy								

D. Programming Universal Modes 1 and 2 (Polyphonic/Two Tracks)

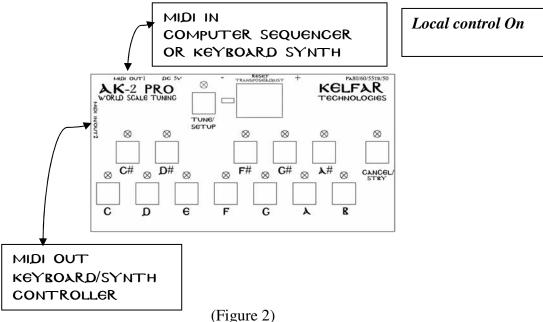
1. Press both the CANCEL/STBY and TUNE/SETUP buttons
2. Press the key "G"
LED Display shows P2
3. Select Mode 1 "C" or Mode 2 "C#"
LED Display shows PC for Mode 1 and Mode 2
4. Select the Midi-In Channel (1-16) by using the TRANSPOSE/ADJUST (+) and (-) buttor
5. Press TUNE SETUP
LED Display shows 50
6. Select the Midi-Out Channel (1-16) using the TRANSPOSE/ADJUST (+) and (-) buttons
7. Press Tune/ Settup
LED Display shows
LED Display shows P i or P2

Notes:

- 1. For Universal Mode to work, connect the AK2 Pro MIDI IN/OUT to your multitimbral sequencer/Synthesizer/Keyboard Midi-In and Midi-Out. (see figure 1 and 2)
- 2. Your keyboard must support Fine Tuning Midi data (for Mode 1) or Pitch Bend Midi Data (for Mode 2).
- 3. Set Keyboard to Local control off. (see Figure 1)
- 4. Set Pitch Bend Range to 2.
- 5. Only the first detuned note of the User Scale will be applied to the 12 notes. For example, if User Scale 1, and note C is set to -25 cents then all the selected notes(C-B) will be set to -25 cents.



Connecting AK2 Pro to a Computer Sequencer using external Keyboard or Controller:



E. Programming the Universal Mode 3 (Monophonic/Single Track)



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1. Press both cancel/stby and tune/setup buttons 2. Press the key "G"
LED Display shows P2
3. Select Mode 3 using the "D" key
LED Display shows PC for Mode 3
4. Select the incoming Midi-In Ch. (1-16) by using the using the TRANSPOSE/ADJUST (+) and
(-) buttons
5. Press Tune/ Setup
LED Display shows
6. AK2 Pro will reboot
LED Display shows P3
 For Universal Mode 3 to work, connect the AK2 Pro MIDIIN/OUT to your multitimbral sequencer/Synthesizer/Keyboard Midi-In and Midi-Out. (see Figures 1 and 2 above) Your keyboard must support Pitch Bend Midi data Set Keyboard to Local control off. (Figure 1) Set Pitch Bend range to 2. You may further adjust the pitch of each note in the octave (C to B) to -64/+63 cents by programming your own User Scales 01-09. User 00 is set to -50 cents "fixed."
F. Programming the Universal Mode 4 (Polyphonic 12 notes max)
1. Press both cancel/stby and tune/setup buttons 2. Press the key "G" Cancel/ Stry Setup
LED Display shows P2 3. Select key "D#" for Mode 4
LED Display shows
4. AK2 Pro will reboot
LED Display shows
Notes:
1. For this Universal Mode 4 to work, connect the AK2Pro midiniout to your
multitimbral sequencer/Synthesizer/Keyboard Midi-In and Midi-Out. (see Figures

- 1 and 2 above)
- 2. Set Keyboard to Channel 1
- 3. Your keyboard must support Pitch Bend Midi data
- 4. Set Keyboard to Local control Off. (See Figure 1 above)
- 5. Set **Pitch Bend** range to 2.
- 6. You may further adjust the pitch of each note in the octave (C to B) to -64/+63 cents by programming your own User Scales 01-09. User 00 is set to -50 cents "fixed."

G. Programming User Scales (Bank 01 to 09):
1. Press Tune/
LED display shows UX ×=0-9
2. Select a User Scale "1=C#, 2 =D, 3=D#, 4=E, 5=F, 6=F#, 7=G, 8=G#, 9=A". User O
is default of -50 cents and cannot be programmed or edited.
3. Select a note to detune (C-B)
LED display will show the value of the selected note.

- 4. Use the TRANSPOSE/ADJUST (+) and (-) buttons to adjust the value of the selected note within the range of -64 cents to + 64 cents.
- 5. Repeat steps 5 and 6 to program more notes
 6. Press to exit and save the User Scale into the AK 2 Pro internal memory
 Notes:
 - 1. Press cancel. stby to cancel the operation and exit the programming mode without saving the new user program.

 2. Pressing without a note key being pressed will exit the tuning mode.
 - 2. Pressing without a note key being pressed will exit the tuning mode.
 - 3. Pressing the RESET button without a note key being pressed will reset the selected user scale to zero.
 - 4. During programming operation the CANCELISTBY LED is lit red.
 - 5. During programming operation the yellow LED will begin flashing.

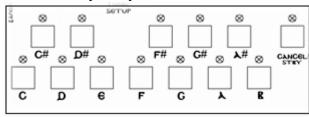
Operating the AK-2 Pro

1. Standard Mode

In Standard Mode, the AK-2 Pro sends a particular System Exclusive midi message to a selected instrument/brand. In order for this operation to work, your midi keyboard/synthesizer **Midi In** port should be Enabled and ready to receive System Exclusive midi data. (*Refer to your keyboard/ synth Owner's Manual*)

Note: Your Owner's Manual might use a shortcut name for the System Exclusive, e.g. sysex

The 12 (C-B) buttons are used to detune a keyboard/synthesizer within the octave. Each time you select a note the LED for that selected note will be lit ON indicating that the SYSEX message has been sent to your synth and the selected note is detuned.



Notes (C-B)

Example:

To convert synthesizer to play the Bayati makam.



- 2. Press C for Default tuning of -50 cents.
- 3. Press "E" and "B"
- 4. Both "E & B" RED LEDs are lit ON indicating that the SYSEX message has been sent from AK2 Pro to the synthesizer
- 5. Your synthesizer is ready to play the Bayati makam.

Note: Pressing CANCEL/STRY will reset your synthesizer detuning to 0 Cents. All selected notes LEDs will be turned Off.

2. Universal Mode

In Universal Mode, the AK-2 Pro sends Pitch Bend midi data to detune your instrument. You may have to adjust the Pitch Bend range to two. (*Refer to your keyboard/synthesizer Owner's Manual*)

Mode 1 (Fine Tune): Incoming notes will be routed and sent to a selected channel PC or SC.

Depending on your selection, if no notes are selected then the incoming notes will be sent to the Primary Channel. However, each selected note will be sent to Secondary Channel as programmed by the user. (*See page 4*)

All incoming midi events received by the Primary Channel will be resent to both Primary Channel and Secondary Channel.

Midi events supported by the AK-2 Pro:

Note on/off, Control Change, Program Change, Aftertouch Polyphonic, Channel Aftertouch, Pitch Wheel Control, System Exclusive,

Mode 2 (Pitch Bend): Incoming notes will be routed and sent to a selected channel PC or SC.

Depending on your selection, if no notes are selected then the incoming notes will be sent to the Primary Channel. However, each selected note will be sent to Secondary Channel as programmed by the user. (*See page 4*)

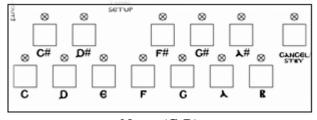
All incoming midi events received by the Primary Channel will be resent to both Primary Channel and Secondary Channel.

Midi events supported by the AK-2 Pro:

Note on/off, Control Change, Program Change, Aftertouch Polyphonic, Channel Aftertouch, Pitch Wheel Control, and System Exclusive.

Mode 3 (Pitch Bend): In this mode the AK2 Pro operation will be in monophonic.

Mode 4 (Pitch Bend): Each selected note will be routed and sent to its own channel as defined by the AK-2 Pro. In order for this mode to work, your midi keyboard must be operating using Channel One (ch.1). (*Refer to your keyboard/ synth Owner's Manual*)



Notes (C-B)

Notes:

- 1. If no notes are selected then the incoming notes will be resent to Channel One.
- 2. *Selected notes will be sent to the following channels*:2,3,4,5,6,7,8,9,11,12,13,14,15.

All incoming midi events received by the Primary Channel will be resent to 13 channels. Midi events supported by the AK-2 Pro:

Note on/off, Control Change, Program Change, Aftertouch Polyphonic, Channel Aftertouch, Pitch Wheel Control, System Exclusive.

3. User Scales

AK-2 Pro User Scales 01 to 09 are programmable. User Scale 00 is the default detuning of -50 cents. User Scale 00 is predefined by the AK-2 Pro and cannot be reprogrammed.

Selecting User Scales in real time.

Example:

To Select User Scale 03



- 2. The Display shows the existing User Scale
- 3. Press D#



Note: When selecting User Scale 00 the AK-2 Pro will recall User 00 and exit the operation.

4. Transposition

To transpose a keyboard/synthesizer in Chromatic Steps: -12 to +12, use the TRANSPOSE/ADJUST (+) and (-) buttons.

Red button: Resets the value to 00 Black (+) = Increment in positive values

Black (-) = Decrement in negative values

The values are displayed on the two digits display.

Note:

The transpose feature is defined by your synthesizer and specific to each manufacture. The following midi events are supported: GM2, XG, Ketron, Fine Tune only (Mode 1 to 4)

5. Standby mode

- 1. Hold the CANCEL/STBY for more than 5 seconds, and the AK-2 Pro will power off.
- 2. Power-up the AK-2 Pro from standby mode by pressing the CANCEL/STBY again.
- 3. AK-2 will reboot.

Setup Instructions per Keyboard

*Korg PA80/60/50/55TR ©

Note: You need a 1/4" to 1/4" cable

- 1. Turn the Pa power On and do not connect the AK-2 Midi_Out to the Pa MIDI_In at this moment!
- 2. Connect the ¹/₄" jack from the REAR of the AK-2 to PA80/60/50/55Tr (Assign, PDL/SW)
- 3. In the PA Global mode Pa/Sw....
- 4. Select P/s :O. Tone
- 5. In the PA Global mode Midi In Channel
- 6. Use the Track Button to switch from Ch 01 to 16
- 7. Select Ch01: Global
- 8. Save all the SETTINGS by pressing WRITE
- 9. Lock the SCALE in the Preferences by going to

Pref: Lock (Gbl). WRITE IT!

*Important: It is recommended that you do not touch the keys on the PA while selecting the scale(s) from the AK-2 Pro. That might add or delete extra ¼ notes to the PA.

*Korg Pa1x / Pro ©

- *Important: Korg Pa1x / Pro must be first upgraded to OS 2.01 and later before the AK-2 Pro box can work with it.
- 1- Go to GLOBAL Press MIDI, and choose the FILTERS tab on the bottom of the screen.
- 2- On the original factory setting, you will see both channel 1 for **MIDI IN** and **MIDI OUT** set to "Sys. Excl." as default. Go ahead and change them both to **OFF**!
- 3- Save this setting by opening the drop down menu on this page (loacted in the upper right corner of the screen) and save both **WRITE GLOBAL SET UP** and **WRITE MIDI SET UP**.

That's it! The AK-2 should be able to control all sounds within all sections of the keyboard, including the otherwise impossible SOUND MODE!

*Korg Triton series ©

- 1. Go to Global mode then navigate to MIDI
- 2. Check the midi filter box for Sysexlusive
- 3. Write Global into the memory.
- 4. Change the User Scale for each Program/Combo./Moss to User 00, Scale C and WRITE Program/Combo/Moss.

*Kurzweil ©

1. Set Sysex ID to 127

*Yamaha XG ©

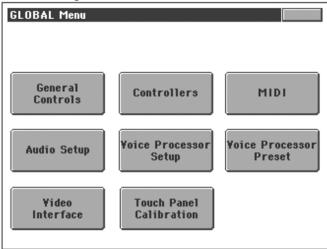
- 1. Consult your Yamaha manual to change the midi setup of the Yamaha keyboard/synth.
- 2. By default in some Yamaha Keyboards, such as the PSR series, the Midi channels are sent to the Song/Sequencer.
- 3. On the PSR/Tyros, you will need to make sure that the Midi_In messages are coming to the sounds that you are playing directly on the keyboard (i.e Main=Ch1, =Ch2, etc...)
- 4. Make sure the system exclusive is enabled.

*Roland Fantom X ©

- 1. Menu > System > Midi > Receive > Remote keyboard Switch > ON
- 2. Menu > System > Midi > Receive > Receive Exclusive > ON
- 3. System Write
- *(Refer to your keyboard/ synth Owner's Manual)

Korg Pa800/ Pa2x Pro/ Pa3x series

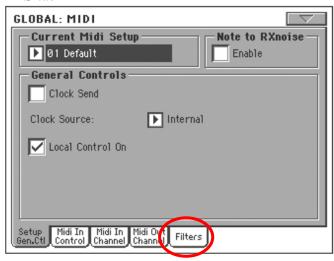
1. Press the MENU button to open the Global Edit Menu



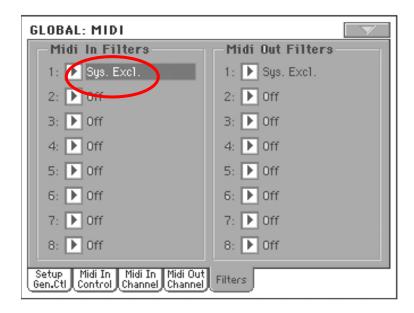
2. Select Midi

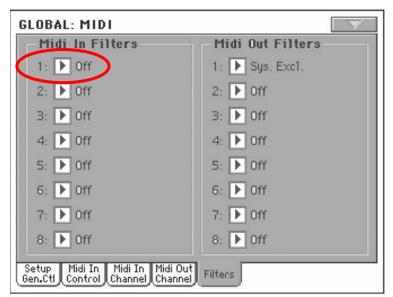


3. Select the **FILTERS** tab



4. By default the Midi In Filter is set to Sys. Excl. Change it to Off

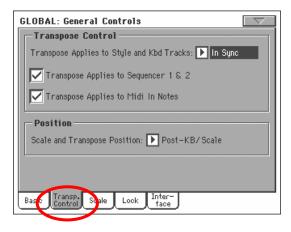




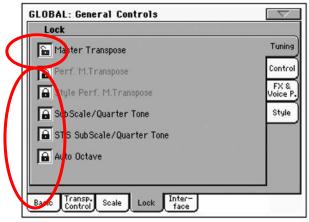
5. Press the MENU button to open the Global edit menu. Select General Controls



6. Select the **Transp.Control** tab



7. Select the Lock tab. Select Tuning. *Unlock* Master Transpose. *Lock* Perf. M. Transpose, Style Perf. M. Transpose, Subscale/Quarter Tone, STS Subscale/Quarter Tone, and Auto Octave.



8. Write your settings. Touch the page menu icon to open the menu. Touch a command to select it. Touch anywhere in the display to close the menu without selecting a command.



Programming the AK-2 Pro

Press both the CANCEL/STBY and TUNE/SETUP buttons

Primary Instrument
The Display shows
1. Press "C"
The Display shows
2. Press "C".

3. If you do not want to Program the Secondary instrument then press CANCEL/STBY.

Yamaha Tyros and Psr series

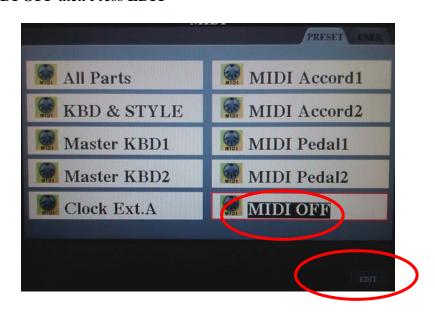
1. Press FUNCTION



2. Select MIDI



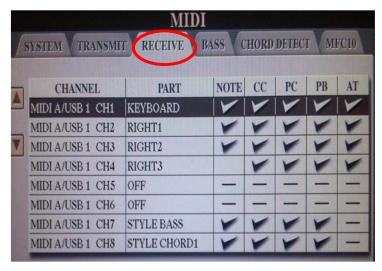
3. Select MIDI OFF then Press EDIT



4. Enable RECEIVE Sysex (SYS/EX.) Rx:ON

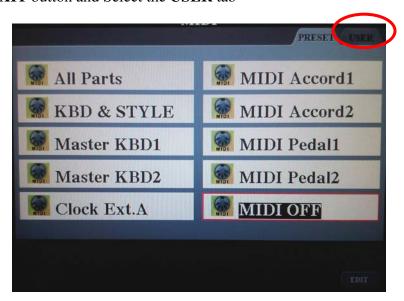


5. Select the **RECEIVE** tab and assign **PART** to the appropriate MIDIA/USB1 CHANNEL





6. Press the EXIT button and Select the USER tab



7. Give your MIDI setup a name i.e **AK 2_pro** and select **SAVE**. Press the **[EXIT]** button.



Programming the AK-2 Pro

Press both the CANCEL/STBY and TUNE/SETUP buttons



- Primary Instrument
 - The Display shows
- 1. Press "C#"

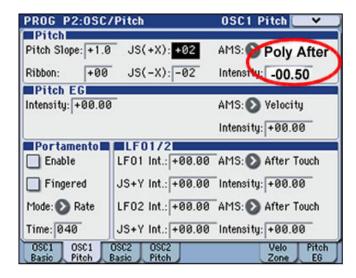
The Display shows P2

- 2. Press "E"
- 3. If you do not want to Program the Secondary instrument then press CANCEL/STBY.

Korg M3 series

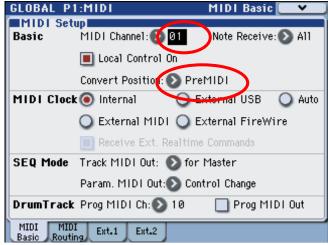
Making your own sound set to work with AK-2 Pro

- 1. Select a Program that you want to work with the AK-2 Pro
- 2. Press PAGE SELECT
- 3. SELECT P2/OSC PITCH
- 4. SELECT OSC1/ Pitch or OSC2/Pitch
- 5. MAKE AMS to **Poly After** and the Intensity to **-00.50** (cents) as show below

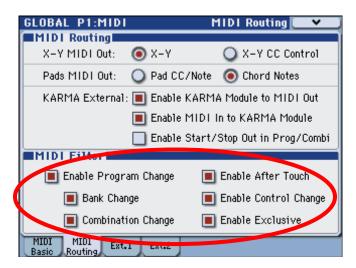


Note: if the program is using two OSC then make sure you set them both to PolyAfter the Intensity for both is = -00.50

- 6. SAVE YOUR PROGRAM or WRITE IT (select the down arrow/upper right corner).
- 7. Select GLOBAL to set the TRANSPOSE to PREMIDI. Midi Channel = 01.
- 8. Select MIDI



- 9. Select Midi Routing
- 10. Make sure Midi Filter is selected for all of them (as shown in the image below)



11. Write Global Settings. Select the arrow down > Write Global Setting.

The Write Global Setting dialog box will appear.



Programming the AK-2 Pro

Press both the CANCEL/STBY and TUNE/SETUP buttons



- Primary Instrument
 - The Display shows P
- 1. Press "C"

The Display shows P2

2. Press "G".

The Display shows the midi channel number i.e

Notes: Make sure that the AK-2 Pro's midi channel is the same as the Korg M3's midi channel. Use the Transpose buttons of the AK-2 Pro to select the appropriate midi channel.

- 3. Press Tune/Setup (yellow button)
- 4. If you do not want to Program the Secondary instrument then press CANCEL/STBY.

Important information:

Unit Dimensions 5.8 in x 3.2 in x 1.8 in / 14.7 cm x 8.1 cm x 4.6 cm (metric)

Included with the AK-2 Pro:

Power Supply 110v/240v to 5v DC.

Registration:

Register your AK-2 Pro today: http://kelfar.net/contact.htm

Date of Purchase:

Warranty:

1 year limited warranty by Kelfar Technologies from the date of purchase.

Supporting Documents and Software

AK-2 Graphic Interface can be found here: http://kelfar.net/prod06.htm
For the latest AK-2 Pro document: http://kelfar.net/prod06.htm
Latest Firmware update http://kelfar.net/prod06.htm

Support:

Email: support@kelfar.net

*Specifications subject to change without notice.

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