

KORG



Audio Gallery

AG-10

Wavetable Sound Module

GENERAL
MIDI
INSTRUMENT

User's Manual

THE FCC REGULATION WARINING

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interferences to radio and television reception. It has been type tested and found to comply with the limits for a class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the equipment with respect to the receiver.
- Move the equipment away from the receiver.
- Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems". This booklet is available from the US Government Printing Office, Washington, D.C. 20402, stock No. 004-000-00345-4.

CANADA

THIS DIGITAL APPARATUS DOES NOT EXCEED THE "CLASS B" LIMITS FOR RADIO NOISE EMISSIONS FROM DIGITAL APPARATUS SET OUT IN THE RADIO INTERFERENCE REGULATION OF THE CANADIAN DEPARTMENT OF COMMUNICATIONS.

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Thank you for purchasing the KORG Audio Gallery Wavetable Sound Module. To ensure long, trouble-free operation, please read this manual carefully.

Precautions

■ Location

Using the unit in the following locations can result in a malfunction.

- In direct sunlight
- Locations of extreme temperature or humidity
- Excessively dusty or dirty locations
- Locations of excessive vibration

■ Power supply

Please connect the supplied AC adaptor to an AC outlet of the correct voltage. Do not connect it to an AC outlet of a voltage other than that for which your unit is intended.

■ Interference with other electrical devices

This musical instrument contains a microcomputer. Radios and televisions placed nearby may experience reception interference. Operate this unit at a suitable distance from radios and televisions.

■ Handling

To avoid breakage, do not apply excessive force to the switches or controls.

■ Care

If the exterior becomes dirty, wipe it with a clean, dry cloth. Do not use liquid cleaners such as benzene or thinner, or cleaning compounds or flammable polishes.

■ Keep this manual

After reading this manual, please keep it for later reference.

■ Keeping foreign matter out of your equipment

- Never set a cup, vase, or any other container with liquid in it on top of this equipment. If liquid gets into the equipment, it could cause a breakdown, fire, or electrical shock.
- Be careful not to let metal objects get into the equipment. If something does slip into the equipment, turn off the power switch and unplug the AC adaptor from the wall outlet. Then contact your nearest Korg dealer or the store where the equipment was purchased.

Features of the AG-10

■ Sound module conforms to GM (General MIDI)

Since the AG-10 conforms to GM, which is used by various applications, you can play the performance data, multimedia software, and computer games of any manufacturer or model as long as they too conform to GM.

■ All-digital AI² synthesis

This half-rack size unit accommodates high-quality sound generated by the AI² (Advanced Integrated Square) sound system which it inherited from the world 01/W. From the tone generator (a capacity of 4Mbyte) through the filters and effect units, all audio is handled in digital form, ensuring high-quality sound with no signal loss or sound deterioration.

■ 32-note Polyphony

The AG-10 offers a polyphony of 32 notes in Single mode, allowing you to play the sounds of a full band or orchestra that requires many notes simultaneously.

■ Number of parts

The AG-10 can play up to 16 parts—including the drums part (Channel10)—simultaneously.

■ A broad variety of high-quality sounds

The AG-10 meets a wide range of performance requirements using 128 sounds, plus a single drum kit that conforms to GM, as well as three additional drum kits.

■ Two effect processors

Reverberation and chorus effects add reverb and spatial depth to an individual part, creating a richer and more colorful sound.

■ PC interface supporting computer music creation

The AG-10 is equipped with not only MIDI connections, but also a PC interface that allows you to connect any Apple Macintosh or IBM PC (or compatible) computer directly to the serial port.

■ Other features

- The Audio input terminal allows the signal to be mixed with the output from other sound modules.
- The compact body of this half-rack size unit does not take up much space and is convenient to transport.
- The AG-10 uses recycled packing materials that are safe for the earth's environment.

Welcome to the World of MIDI

The AG-10 is a sound module that plays music data transmitted via MIDI (Musical Instrument Digital Interface). MIDI is the industry standard for transmitting data between electronic musical instruments and/or computers by converting various information required for musical performance (such as a keyboard performance, selection of sounds, etc.) into digital signals.

MIDI specifications of the AG-10 conform to the GM (General MIDI) system. The GM system consists of the specifications for sound modules that allow you to play the same music data on any type of equipment or any manufacturer's model. Therefore, on any GM compatible sound module, the correct sound is produced from the corresponding sound data. For example, the piano sound is produced from the piano sound data, and the bass drum sound is produced from the bass drum sound data. However, in the way that an identical piece of music may sound different depending on the orchestration, so the sound produced from the sound modules reflects the characteristics of each module.

The following are some application examples of the AG-10 and MIDI.

■ Playing back performance data (GM score)

Performance data (GM score) sold in the market for GM sound modules can be played back on the AG-10. You can also download the GM compatible performance data from a computer telecommunication network. You can not only enjoy simply playing back this performance data, but utilize them in various ways such as minus-one practicing (muting the melody part, and adding your own performance or vocal lines), and remixing (changing the balance and arrangement between parts). The performance data is played back on the sequencer (see below). However, you can use the Media Player that comes with the MS-Windows 3.1 or later version, or on the MS-Windows 3.0 with MME.

■ MIDI for multimedia & software games

Some multimedia software (software in which images and audio are integrated) include MIDI data. Some computer games are also MIDI compatible. Software that conforms to the GM system will allow you to play back high-quality performances on the AG-10.

■ Presentations

You can create attractive and interesting presentations by playing background music via MIDI using MIDI-compatible presentation software. Of course, you can use standard audio tracks for background music in presentations, but using the MIDI data will save memory space compared to audio data, and will give you many other capabilities, such as editing the tempo and balance, or saving an audio track for other purposes.

■ Creating and editing MIDI data

A MIDI sequencer is used to create and edit MIDI data. There are two types of MIDI sequencers: sequencer software that runs on a computer, and a dedicated sequencer hardware unit. Using a MIDI sequencer, you can create the performance of a full band or orchestra by recording and playing back the performance, track-by-track as you would with a multi-track tape recorder. You can also correct mistakes made during the performance. Those who do not even play keyboard at all can create a song by inputting each note on the sequencer.

■ MIDI system upgrade

The AG-10 is compatible with the Windows MME (see Note 1) and Apple MIDI Manager (see Note 2). You can connect other musical instruments via the AG-10's MIDI terminals when the AG-10 is connected to a computer's serial port. If you connect a synthesizer to the AG-10, it is possible to use the synthesizer's use voices for certain parts, as well as to use the synthesizer's keyboard to input data.

Note 1: Windows MME (Multimedia Extensions)

This is an additional function of MS-Windows designed to handle audio signals and MIDI data. The MME function is included in Windows 3.1 and later versions.

Note 2: Apple MIDI Manager

This system extension allows multiple MIDI applications to run simultaneously on Macintosh computers. It comes with many MIDI software applications such as the sequencer software.

- * IBM is a registered trademark of International Business Machines Corporation.
- * Windows is a trademark of Microsoft Corporation.
- * Apple, the Apple logo and Macintosh are registered trademarks, and MIDI Manager and PatchBay are trademarks of Apple Computer, Inc.
- * Other brand and product names are trademarks or registered trademarks of their respective holders.

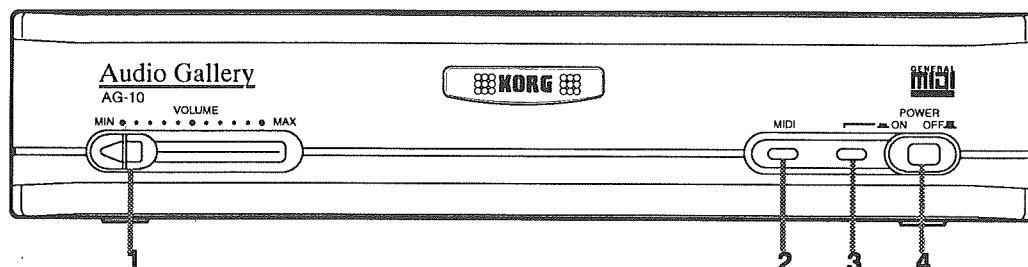
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Getting Started

Front/rear panels

Front panel



1 Master volume

2 MIDI indicator

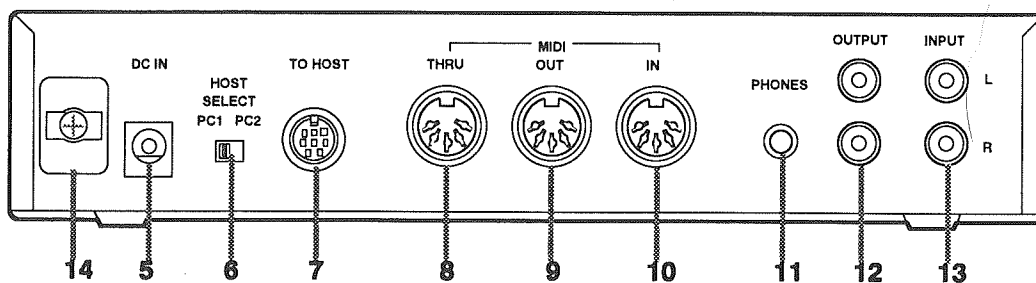
Lights up when MIDI data is received.

3 Power indicator

Lights up when the power is ON.

4 Power switch

Rear panel



5 DC IN

Connect the dedicated AC adapter. (See page 8.)

6 HOST select

Selects the computer to be connected. (See pages 10, 11.)

7 TO HOST

Connect the computer using the dedicated cable. (See pages 10, 11.)

8 MIDI THRU 9 MIDI OUT 10 MIDI IN

These are the terminals that transfer the MIDI data. (See pages 9, 13.)

11 PHONES

Connect a pair of headphones here. (See page 8.)

12 OUTPUT

Outputs the sound from the AG-10. Connect to an amplifier with built-in speakers or a stereo set. (See page 8.)

13 INPUT

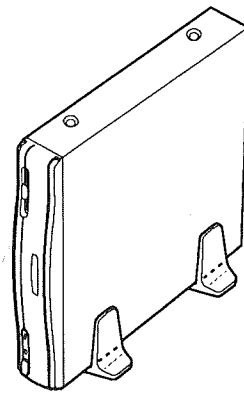
This is used to mix the line output of other sound modules or CD-ROM drives with the AG-10 audio signal. Adjust the volume level on the instrument to be connected. (See page 8.)

14 AC Adaptor Cord Holder

Fit the AC adaptor cord through this receptacle to prevent it from being accidentally unplugged.

Setting Up the AG-10

Please use the desk stand that has been included in the package to set up the AG-10 vertically as shown in the figure below.



Connections

Before connection

First, make sure that the AG-10 power switch is turned OFF. Also make sure that the power of all connected equipment (amps, mixers, etc.) is turned OFF. Set the volume controls of all equipment to their lowest position.

Power

Insert the included AC adapter cable into the rear panel DC IN connector, and connect the other end to an AC outlet.

Connecting audio equipment

Using the OUTPUT terminals

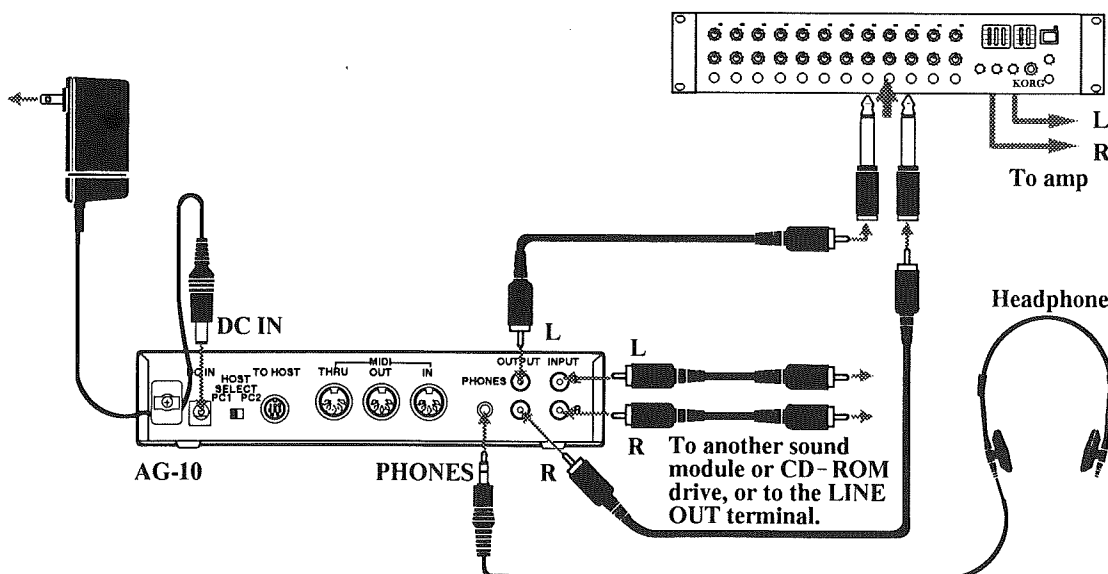
Connect the AG-10 OUTPUT terminals to the INPUT terminals of an amplifier or other audio equipment using an audio cable.

Using the INPUT terminals

Connect the AG-10 INPUT terminals to the OUTPUT terminals of another sound module or CD-ROM drive, or to the LINE OUT terminals.

Using the PHONES connector

Connect a pair of headphones to the PHONES connector.

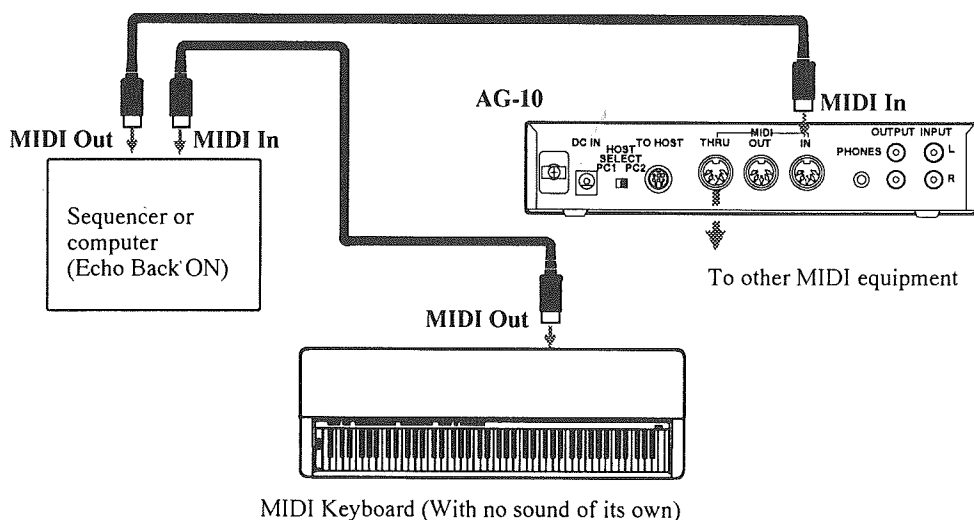


Connections Using MIDI

Using MIDI cables, connect the AG-10 to the MIDI equipment. There are three MIDI jacks: Out, In, and Thru. Data originating from the AG-10 is transmitted through the Out jack, while data from other equipment is received through the In jack. The Thru jack is used to pass on information which has been received at the In jack to another instrument without modifying it.

Using the AG-10 in a system with a MIDI keyboard (that has no tone generator) and a sequencer (or computer) : Using MIDI cables, connect the MIDI In jack on the AG-10 and the MIDI Out jack on the sequencer (computer MIDI interface) and the MIDI In jack of the sequencer (MIDI interface) to the MIDI Out jack on the MIDI keyboard.

- A MIDI interface is needed to connect the MIDI jacks on the AG-10 to a computer. (For instructions on connecting the computer and the MIDI interface, please refer to the respective instruction manuals.)
- When data is being input to the sequencer (or computer) by a MIDI keyboard, set up the sequencer so that data from the sequencer's MIDI In jack is echoed back to the MIDI Out jack. (For more detailed information, please refer to the instruction manual for the sequencer, etc.)



- The AG-10 will respond to all note data received at the MIDI In jack (note numbers 0 to 127). (Depending on the timbre, there may be times when no sound is produced in the high ranges.)

Key Name	C-1	C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	G9
MIDI Note Number	0	12	24	36	48	60	72	84	96	108	120	127

Range which can be output on a typical 61-key (5-octave) keyboard

Connections With an IBM PC (or compatible) Computer

The following two methods can be used to control the AG-10 using an IBM PC (or compatible) computer.

- ① **Install a MIDI interface to the IBM PC (or compatible) computer. Connect the MIDI jacks on the MIDI interface to those of the AG-10.**

☞ Please refer to "Connections Using MIDI" (page 9).

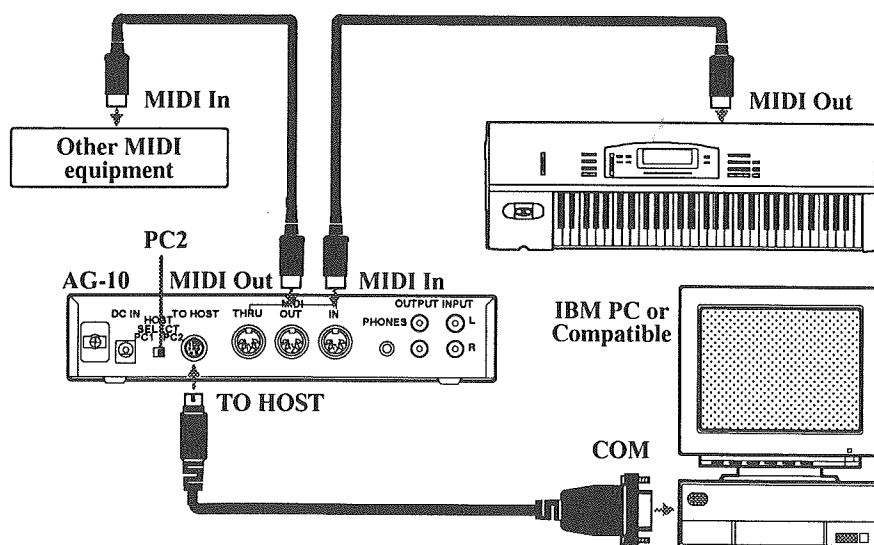
—or—

- ② **Connect the serial port (COM port) on the IBM PC (or compatible) computer directly to the TO HOST jack on the AG-10.**

When the AG-10 is connected to the serial port (COM port) on an IBM PC (or compatible) computer, it can be used as a MIDI interface.

The AG-10 produces sound for both data input from the MIDI In jack and data input from the TO HOST jack. (The Echo Back function should be set to "Off.") Data input from the TO HOST jack is echoed to the MIDI Out jack.

- * There may be times when this type of connection cannot be used, depending on the type of computer and the type of application (sequencer) being used. With applications that do not support Windows MME (Multimedia Extension), this connection may not be possible, unless the application specifically supports the AG-10.



When connecting the AG-10 directly to an IBM PC (or compatible) computer, a dedicated connection cable should be used.

If the connector on the computer is a 25-pin connector, use a 9-pin to 25-pin adaptor.

1. Using the dedicated connection cable, connect the TO HOST port on the AG-10 to the serial port (COM1 or COM2) on the IBM PC (or compatible) computer.
2. On the AG-10, set the Host Select switch to "PC2."
3. For instructions on installing the KORG MIDI Driver, please refer to the section "Installing the KORG MIDI Driver in MS-Windows" on page 20.

- * If there is no connecting cable included in the package you have purchased, a dedicated connection cable should be purchased separately (Connecting cable AG-001 is included with the KORG MIDI Driver software package).

Connections With an Apple Macintosh

The following two methods can be used to control the AG-10 using an Apple Macintosh computer.

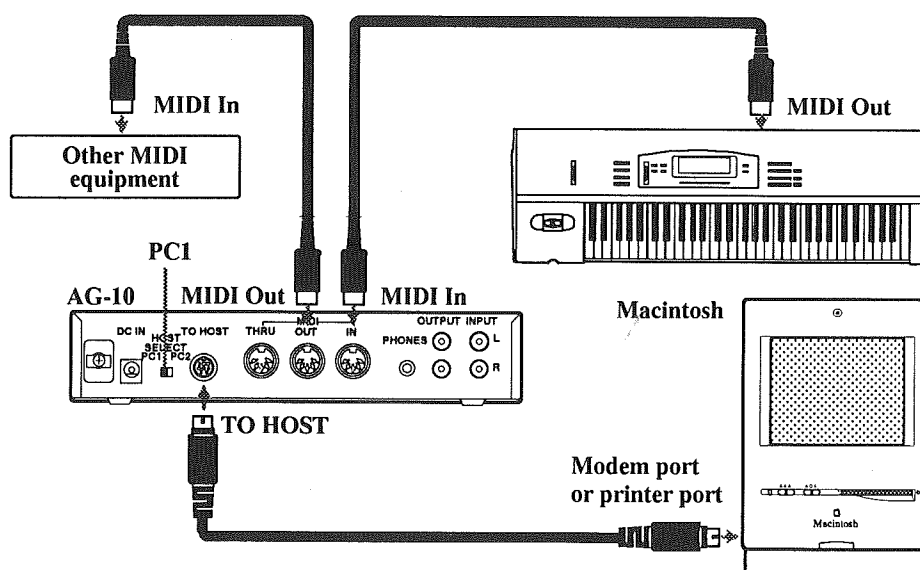
- ① **Connect a MIDI interface to the modem port or the printer port on the Apple Macintosh computer. Connect the MIDI jacks on the MIDI interface to those of the AG-10.** ☐ Please refer to "Connections Using MIDI" (page 9).

—or—

- ② **Connect the modem port or printer port on the Apple Macintosh computer directly to the TO HOST jack on the AG-10.**

When the AG-10 is connected to the modem port or printer port on an Apple Macintosh computer, it can be used as a MIDI interface.

The AG-10 produces sound for both data input from the MIDI In jack and data input from the TO HOST jack. (The Echo Back function should be set to "Off".)



When connecting the AG-10 directly to an Apple Macintosh series computer, a dedicated connection cable should be used.

1. Using the dedicated connection cable, connect the TO HOST port on the AG-10 to the modem port or printer port on the Apple Macintosh series computer.
2. On the AG-10, set the Host Select switch to "PC1."
3. If the application (sequencer) being used has a clock setting, set it to 1 MHz.

* If there is no connecting cable included in the package you have purchased, a dedicated connection cable should be purchased separately (Connecting cable AG-002 is included with the KORG MIDI Driver software package).

* Using the KORG MIDI Driver enables signals sent to the tone generator of the AG-10 and to the MIDI Out port to be handled as separate MIDI output sources. For instructions on installing the KORG MIDI Driver, please refer to the section "Installing the KORG MIDI Driver on a Macintosh Computer" on page 23.

Turning On the Power

The procedure outlined below should be followed when turning on the power, in order to prevent damage to speakers from a sudden surge in input.

1. Turn the Master Volume on the AG-10 all the way down. Also turn down the volumes of any amps or other equipment connected to the AG-10 to the minimum level.
 2. Turn on the power to the AG-10 and any other external sound sources.
 3. Turn on the power to any playback equipment such as speakers or amplifiers.
 4. Gradually increase the Master Volume to adjust the sound volume. Then adjust the sound volume of any other audio playback equipment being used.
- * The AG-10 has an extremely broad dynamic range. When the AUX IN jack of a stereo system is being used for playback in a household environment, the volume should be kept low whenever possible, in order to prevent speaker damage.
5. When turning off the power, lower the amp volume before turning off the power to the AG-10.

MIDI and GM (General MIDI)

ABOUT MIDI

MIDI is the name for the standard interface determined by the Japan MIDI Standard Committee and the U.S. MMA (MIDI Manufacturers Association) to link electronic instruments together. It is supported today by musical instrument manufacturers throughout the world, and is used in an extremely broad range of applications.

Normally, with MIDI, events such as “press a key” and “change the sound” are converted into digital signals, which can then be transmitted and received in real time. (Because of this, in contrast to audio signals, switching cables or making other hardware changes during performance will interrupt the signal transmission, and the music will not be played correctly.) MIDI also makes it possible to send sound data from a computer to a musical instrument all at once, in a “package” called a “bulk dump”.

There are three types of MIDI jacks: Out, In, and Thru. Information from the MIDI equipment is transmitted through the Out jack, while information from other equipment is received through the In jack. The Thru jack is used to pass on information which has been received through the In jack to another instrument without modifying it.

MIDI connections are made between the Out or Thru jack of one instrument and the In jack of another instrument. MIDI data is transmitted in only one direction: from the Out or Thru jack, by means of a 5-pin MIDI cable, to the In jack of the other instrument.

MIDI data for up to 16 channels can be transmitted with a single MIDI cable. One channel is used for the performance of an instrument sound for one part.

The AG-10 is equipped with a function which allows it to take MIDI signals sent from the serial port of a computer and convert them into performance data. If the computer and software being used can accommodate the output of MIDI signals through the serial port, there is no need for a MIDI interface. With connections using the serial port, both MIDI In signals and MIDI Out signals can be transmitted with a single cable.

ABOUT GM (General MIDI)

The GM (General MIDI) system is a set of shared tone generator specifications agreed upon for MIDI usage by the Japan MIDI Standard Committee and the U.S. MMA, in order to allow performance data with a high level of compatibility to be created using any type of tone generator. As the minimum range supported by GM tone generators, the GM system defines basic specifications such as the number of voices (performance), sound mapping (sound set), and mapping of rhythm sounds on the keyboard (percussion maps).

The question of what kind of sound will be produced in relation to the sound name with a particular tone generator has been left up to each individual tone generator manufacturer. The types of built-in effects and effect configurations also differ from one tone generator to another. For this reason, performances will inevitably sound different to some degree on different tone generators. Naturally, sounds and specifications must be determined to some extent, so that tone generator manufacturers can maintain sufficient compatibility with existing GM sound generators, but it is also important that programmers cooperate in the search for higher compatibility, testing various types of GM tone generators and compromising where necessary as they create their sequences, in order to further compatibility between models of different manufacturers. If you are programming your own MIDI sequence data to be distributed as GM system data, we hope that the question of compatibility will be given sufficient consideration.

- When MIDI data is produced for copyrighted compositions, please be aware that the data cannot be distributed without the permission of the person holding the copyright.

The following pages explain the various MIDI messages. Some of these act differently depending on the type of sound source you use. This difference is more significant if you use a certain MIDI message in an unexpected way (for example, if you try to use a MIDI message to produce a tone that is too far from the pitch range of the instrument). In another case, rhythm may vary due to the difference in data processing characteristics of different types of sound sources when many note-on messages are sent at the same time. In this case, you may need to keep the timing of the part (which is critical to the rhythm and tempo) by sliding the other parts forward or backward in time.

MIDI messages specified by the GM system

The following information will be useful for those who create and edit musical data using a sequencer.

Usually, the user's manual for any MIDI instrument includes a MIDI Implementation Chart, which is a list of MIDI messages the instrument can handle (see page 33.) Here, the explanation of the MIDI messages listed on the MIDI Implementation Chart will be divided into that for the messages specified by the GM system, and that for the messages out of the range of the GM system.

Refer to the "MIDI Implementation" of page 27 for the data format of each message.

■ Note On/Off messages

The Note On message is sent when you play a key on the MIDI keyboard, and the Note Off message is sent when you release the key. These messages are also used for strings, brass and percussion voices, but the percussion voices usually continue to sound to the end of the note even after the Note Off message has been sent.

Each note on the keyboard is numbered in the MIDI system. These numbers are called "Note numbers". Middle C (the center C on an 88-note piano keyboard) is expressed as "60". This number increases by one with each half-step or semitone. For the percussion voices (Channel 10), a different percussion sound is assigned to each note number.

- The AG-10 has extra drum sounds with key numbers 28–34, and 82–87, in addition to the original drum sounds of 35–81 that are arranged in the GM percussion map. (See page 31 "Percussion Map.")
- Key numbers 42, 44, and 46, key numbers 71 and 72, key numbers 73 and 74, key numbers 78 and 79, key numbers 80 and 81, and key numbers 86 and 87 of the drum sounds on the AG-10 are assigned to exclusive groups. That is, the sounds assigned to these note numbers sound monophonically if they are assigned to the same group. However, if each of them belongs to a different group, or does not belong to any group, they sound polyphonically. This is used to create groups of sounds that cut each other off, as in the case of open and closed hi-hat sounds.

The force with which you strike a key is called "Note On Velocity," with the value specified by a number between 1–127. The harder you strike the key, the higher the sound volume level becomes. In many timbres, tonal quality also changes. Although the MIDI standard specifies the velocity for Note Off, it is usually ignored in GM sound modules.

All GM sound modules produce at least 16 voices (notes) for melody, and 8 voices for rhythm. You do not have to be concerned much about polyphony (the number of notes an instrument can play simultaneously) when playing back a GM score on the AG-10, since it is able to produce up to 32 voices of any combination of programs simultaneously.

However, many programs continue producing the released sound after a key is released, which may cause the released sound to be cut abruptly, even if the number of the keys you are pressing is less than the maximum number of polyphonic voices. Also, one program sometimes uses two voices for each note you play (see page 30 "Sound set"). Taking this into consideration, it may be a good idea to leave enough room for the number of voices when you create a song. The maximum number of voices, programs that use two voices, and how to handle the released sound are all different depending on the type of sound module you use. This should be noted when creating GM data, because musical data that is played back correctly on the AG-10 may sound different on another GM sound module which might have less polyphonic voices.

■ Program change

The program change message, expressed as a value between 0–127, selects the program for each channel. Program Change number “0” selects the first program (Grand Piano in the GM system), and the number “127” selects the 128th program (Gunshot in the GM system).

Some sound modules may receive Program Change messages on the rhythm channel (Channel 10). It should be noted that this is an extension outside the range of the GM system. The AG-10 allows you to select any of four drum kits.

Value	Program No.	(Recommended)	Program
0 – 15	1 – 16	(1)	GM Kit
16 – 23	17 – 24	(17)	Power Kit
24	25		(GM Kit)
25	26	(26)	Analog Kit
26 – 39	27 – 40		(GM Kit)
40 – 47	41 – 48	(41)	Brush Kit
48 – 95	49 – 96		(GM Kit)
96 – 111	97 – 112	(97)	(Downloaded Program)
112 – 127	113 – 128		(GM Kit)

■ Pitch Modulation (Control change 1)

Pitch Modulation is usually used to create a vibrato effect on a GM sound module. The initial value is 0, and the maximum is 127.

■ Volume (Control change 7)

This specifies the volume level for each channel. The initial value is 100, and the maximum is 127.

■ Panpot (Control change 10)

This sets the stereo image, the position from which the sound of the channel is heard. Setting this to “64” specifies Center (default). The smaller this value is, the further left the sound is panned, and the larger, the further right.

Whether the panpot of the currently sounding voice moves or not depends on the sound module. The panpot of the AG-10 does not move until a new Note on message is received. The panpot for each instrument on the rhythm channel (Channel 10) has already been determined. Therefore, the AG-10 does not receive this message on that channel.

■ Expression (Control change 11)

The default is 127. The smaller this value, the lower the sound level becomes. Although the resultant effect is the same as the Volume message (Control change 7), the Volume message is used to adjust the basic volume balance between the parts. Whereas the Expression message is used to express changes in volume level — such as crescendi and decrescendi — during performance.

■ Damper Pedal (Control change 64)

This is used to sustain the released part of the piano sound. You can also use this for other programs to maintain the note as if the key were pressed. Setting this to 0 turns OFF the pedal (normal condition), and 127 turns it ON. For numbers between 1–126, the AG-10 recognizes the number 64 or larger as ON, and any number below 64 as OFF, although this differs depending on the sound module.

■ Aftertouch (Key pressure)

Aftertouch is a function that changes the tonal color when you hold the key and press it more deeply. The nature of the change, such as a change in the volume level or a change that creates vibrato, differs depending on the sound. It is also different depending on the type of GM sound module used.

Aftertouch that is controlled for each key is called "Polyphonic Aftertouch," and Aftertouch that is controlled for each MIDI channel is called "Channel Aftertouch." The latter is specified as a standard by the GM system. The AG-10 receives only Channel Aftertouch.

■ Pitch Bender

This message moves the pitch up and down. The degree of pitch bend is set in 16,384 steps, and the center value specifies the original pitch. The maximum width of pitch bend is two semitones in the default condition. This can be changed using the Pitch Bend Sensitivity message.

■ Data entry (Control change 6, 38)

■ Registered Parameter Number (Control change 100, 101)

The Pitch Bend Sensitivity, Fine Tune, and Coarse Tune parameters are set using the Data Entry and Registered Parameter Number (RPN). First, send Control change 101=0, then send Control change 100=0, 1, or 2 to specify the type of parameter. Finally, send the setting value through Control change 6.

Control change 38 is used for setting the Fine Tune parameter in more detail, but the AG-10 does not use this message.

■ Pitch Bend Sensitivity (Registered parameter 0)

This specifies the maximum or minimum pitch bend range in semitone steps. The AG-10 can set this amount in the range of 0 to 12 (1 octave).

■ Fine Tune (Registered parameter 1)

This message sets the tuning for an individual channel. Control change 6=64 specifies the standard pitch, and using the value between 0–127 will change the pitch up to 100 cents (one semitone) upward or downward.

■ Coarse tune (Registered parameter 2)

This message sets a transposition for an individual channel by semitone step. Value 64 specifies the standard pitch. Setting the value to 52 lowers the pitch by one octave, and setting the value to 76 raises the pitch by one octave. The AG-10 allows transposition of up to two octaves (40–88) upward or downward.

■ Reset All Controllers

This message resets the value of all Control changes (excluding Volume and Panpot), Pitch Bend, and Aftertouch for each channel. In case certain Control change values remain changed at the end of the song performance, you can put this message at the beginning of the next song so that these control changes will be reset.

■ All Notes Off

This message is used to stop a sound that continues to sound due to a data error. Usually you should not place this message in the musical data.

■ GM Mode ON

This message initializes all the settings of all the channels. Any non-GM operation mode will be changed to GM mode.

You can use this message instead of placing the Reset all controllers message on all the channels. In this case, be sure not to send any other MIDI message for approximately 0.2 seconds after this message has been sent. This message, unlike the other messages explained so far, consists of 6 bytes. Therefore, you need to use a sequencer that handles System Exclusive messages, in order to input this data.

MIDI messages outside the GM application

It is not necessarily true that you should avoid using any data outside the range of the GM system when creating musical data for the GM system. However, it should be noted that MIDI messages outside the range of the GM system may sometimes be ignored or may cause inappropriate operation, depending on the sound module you use. It is a good idea to use these messages in a way that will not hinder performance.

■ Program Bank Select

This is used to select one of 128 or more programs. Control change 0 specifies the upper bits, and Control change 32 specifies the lower bits. In total, 16,384 program banks can be specified. When a Program change message is received following this message, the sound will change to a program of the new bank.

Although many GM sound modules can receive this message, operation of the module, when the message is received varies depending on the type of sound module used.

The AG-10 uses this message to switch between the rhythm programs and other regular programs, as shown below. Set the upper bits to the values shown below. Although the lower bits are not used in reality, be sure to send the data of both upper and lower bits.

- You can recall any program on Channel 10 other than GM drum sound. (message 1)
- You can mute any channel. (message 2)
- You can recall the GM drum programs on channels other than Channel 10. (message 3)

	Value	Bank Number	(Recommended)	Program	Examples (Hex)
(1)	56 – 57	7169 – 7424	(7169)	GM Sound Set	Bn 00 38 20 00 Cn pp
(2)	58 – 61	7425 – 7936	(8192)	OFF	Bn 00 3F 20 7F Cn 7F
	63	8065 – 8192			
(3)	62	7937 – 8064	(7937)	GM Percussion	Bn 00 3E 20 00 Cn 00

■ VDF Modulation (Control change 2)

The AG-10 uses this message to create a wah-wah effect (cyclic change in tonal color). This message is not compatible with other GM sound modules. Generally, Control change 2 is used for the breath controller.

■ Release Time (Control change 72)

This message controls the release length (the sound maintained after a Note off command is received) specified for each program. A value of 64 sets the release time to the original setting, and larger values elongate the time.

■ Attack Time (Control change 73)

This controls the speed of the attack (how quickly the envelope is raised after a Note On) specified for each program. A value of 64 sets the attack time to the original setting, and smaller values quicken the attack.

■ Brightness (Control change 74)

This message controls the cut-off frequency (point from which the high-frequency range will be attenuated) specified for each program. A value of 64 sets the brightness to the original setting. Larger values make the sound brighter, and smaller values makes the sound darker.

■ Reverb Depth (Control change 91)

This message controls the depth of reverb (effect that adds a sense of acoustic space) for each channel. Although this message can be used on many GM sound modules, the modules without reverb, or models with a different effect processor structure, will not receive this message.

■ Chorus Depth (Control change 93)

This message controls the depth of chorus (effect that adds depth to the sound) for each channel.

■ All Sound Off

This message is used to immediately stop any voice from sounding immediately.

■ Local On/Off

These messages turn on/off transmission of data from the keyboard to the tone generator on a MIDI keyboard instrument. When Local On is sent, playing the keyboard will produce the sound, while playing the keyboard will not produce any sound with Local Off. When Local Off is sent, the keyboard section and the tone generator section are separated inside the unit, the data input from the keyboard will be output via MIDI Out, and the sound is produced only in response to data input via MIDI In. If the connected sequencer echoes the data back (that is, sends back the received data), Local Off should be used to prevent notes from being played twice (data sent back from the sequencer, plus notes played in response to the keyboard).

The AG-10 does not receive Local On/Off messages via MIDI, but receives them via PC interface. If the AG-10 receives a Local Off message via PC interface, its tone generator will not respond to Note On/Off messages received at its MIDI In jack.

■ Active sensing

This message is sent periodically from the sequencer to the sound module to detect any cable disconnection.

■ Master volume

This message controls the volume level of all 16 channels.

■ Master balance

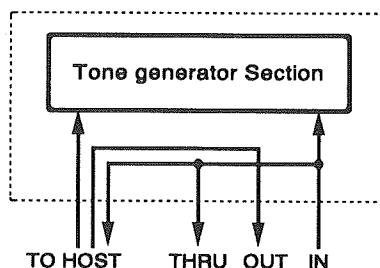
This message controls the stereo image and panpot by changing the left and right volume level of the all 16 channels.

Installing and Setting Up the KORG MIDI Driver

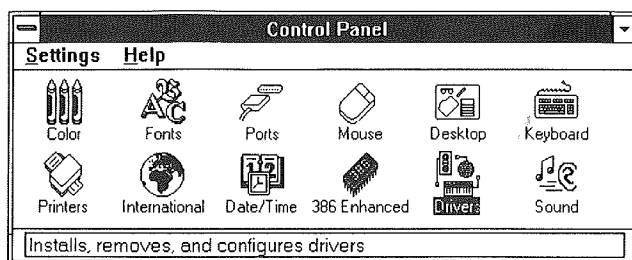
Installing the KORG MIDI Driver in MS-Windows

If the application (sequencer, etc.) being used supports Windows MME (Multimedia Extensions), the KORG MIDI Driver program, provided as an accessory, can be used to drive the AG-10 connected to the serial port (COM port) as a MIDI device.

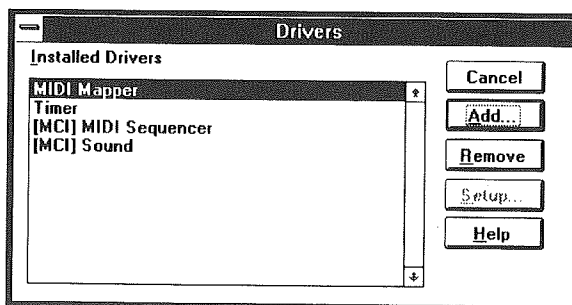
- MIDI In data may not be received correctly if the processing speed of your computer is inadequate.



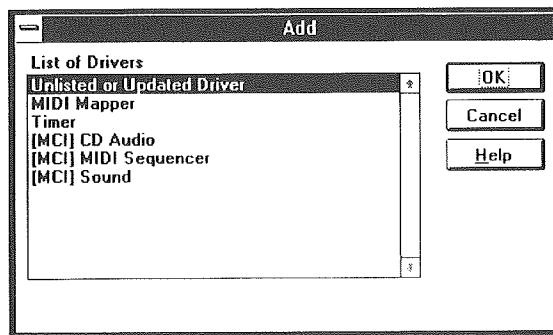
1. Double-click the Driver icon in the Control Panel.



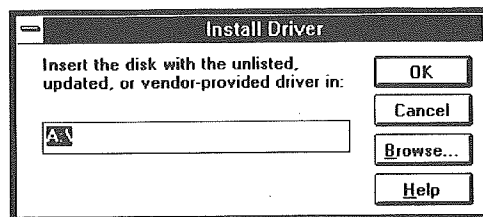
2. Select "Add".



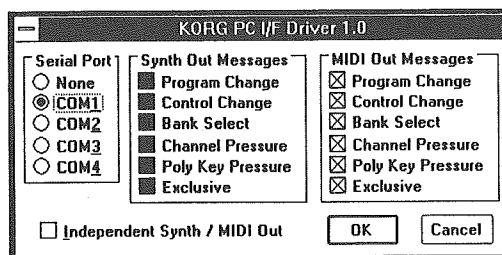
3. From "List of Drivers", choose "Unlisted or Updated Driver", and click the "OK" button.



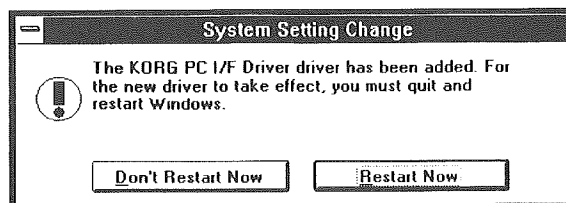
4. If a floppy disk containing the Driver program has been inserted in Drive A, type "A: \" (if the disk is in Drive B, type "B: \"). Then click on "OK".



5. Select "Korg PC I/F Driver", and click the "OK" button. The setup screen appears. Follow the instructions listed under "Setting Up the KORG MIDI Driver (Windows)" on page 22.

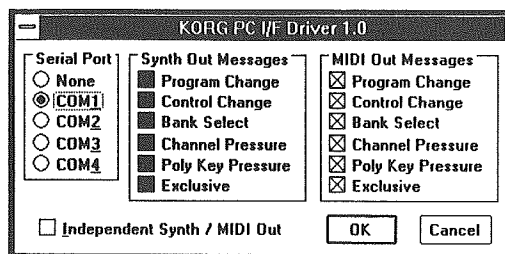


6. To make the Driver effective, eject the disk and press the "Restart" button.



Setting Up the KORG MIDI Driver (Windows)

1. Double-click on the Driver icon in the Control Panel, and select "KORG PC I/F Driver". Then click on the specified button to display the setup screen.
 2. Under "Serial Port", select the serial port to which the AG-10 is connected (COM1 to COM4).
If you wish to use the serial port for another purpose after you have already installed the KORG MIDI Driver, delete the Driver or turn the Driver off by selecting "None."
 3. When the "Independent Synth/MIDI Out" box is checked, data output to the Synth Out port will produce sound from the tone generator of the AG-10, while data output to the MIDI Out port of the AG-10 will be output as MIDI data from the AG-10. If the "Independent Synth/MIDI Out" box is not checked, data output to the MIDI Out port will be sent to both the tone generator of the AG-10 and the MIDI Out port.
 4. The items listed under "Synth Out Messages" can be used to select messages to be sent to the AG-10. The items listed under "MIDI Out Messages" can be used to select messages to be output from the MIDI Out port on the AG-10. If the check mark in the box next to "Independent Synth/MIDI Out" box is unchecked, the same messages will be sent to the AG-10 and output from the MIDI Out port of the AG-10.
 5. When all of the selections have been completed, click the "OK" button. To cancel the selections without changing anything, click the "Cancel" button.
- When playing back MS Extended MIDI data, either mute channels 13–16 on the sequencer or whatever program is being used, or use the MIDI Mapper provided with Windows MME to enter the settings for Extended MIDI.

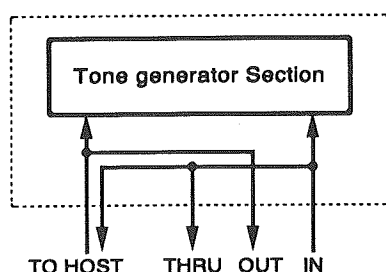


Installing the KORG MIDI Driver on a Macintosh Computer

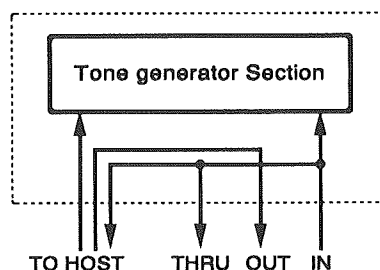
If the application (sequencer) being used supports the Apple MIDI Manager, the KORG MIDI Driver can be used to provide separate MIDI output for the AG-10 tone generator and the MIDI Out port.

- If you are using the AG-10 as the only MIDI Instrument, the Apple MIDI Driver will give better performance than the KORG MIDI Driver.

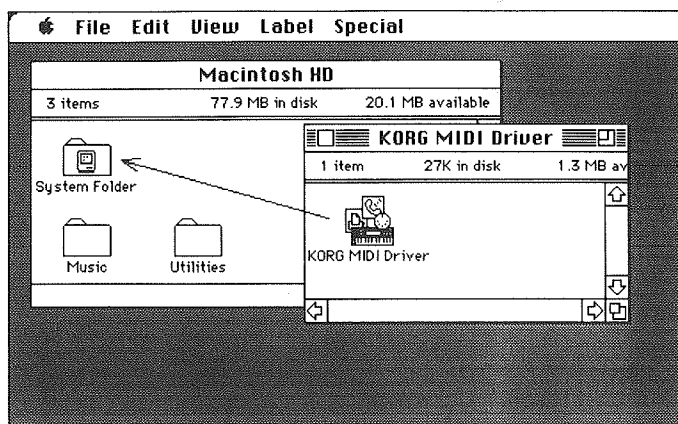
● When the KORG MIDI Driver is not used



● When the KORG MIDI Driver is used

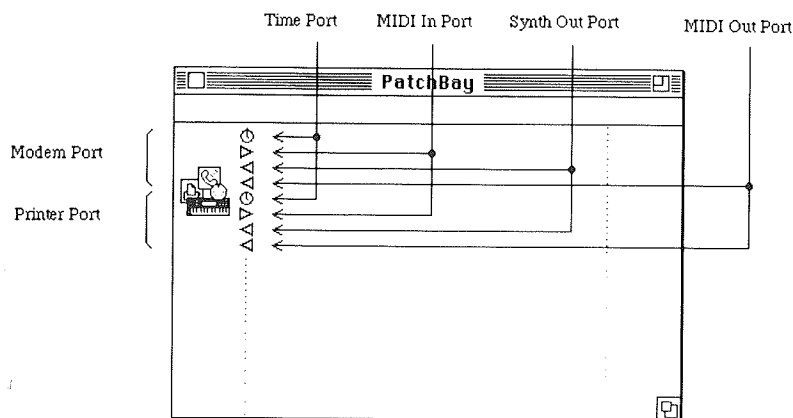


- ※ In order to use the KORG MIDI Driver, the Apple MIDI Manager and PatchBay must be installed.



1. Copy the KORG MIDI Driver from the supplied disk (or from the installed "KORG" folder, if you have purchased the AG-102 package) to the system folder of the startup disk.
2. If the Apple MIDI Driver is already in the System Folder, either erase it or move it into another folder. The KORG MIDI Driver includes the functions of the Apple MIDI Driver. Be careful not to erase or move the Apple MIDI Manager.

Setting Up the KORG MIDI Driver for the Macintosh



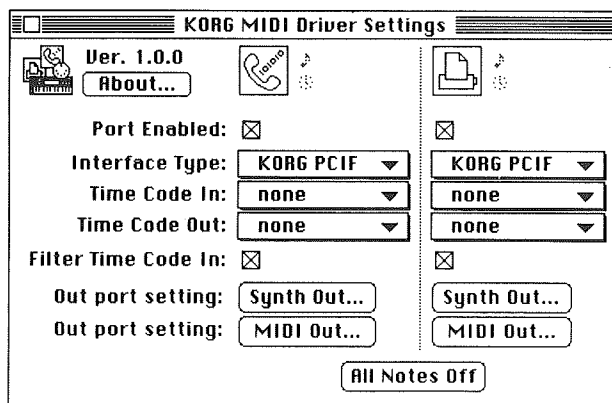
1. Start up the PatchBay program.

If the program has been installed correctly, the KORG MIDI Driver icon will be displayed inside the PatchBay window, as shown above. (The display may differ slightly from the illustration, depending on how the modem and printer ports are set up.)

2. Double-click on the KORG MIDI Driver icon. The setup dialog box will appear.

When "KORG PC IF" is selected as the Interface Type, data sent to the Synth Out Port will produce sound from the AG-10 tone generator, while data sent to the MIDI Out Port will be sent out through the MIDI Out jack on the back panel of the AG-10.

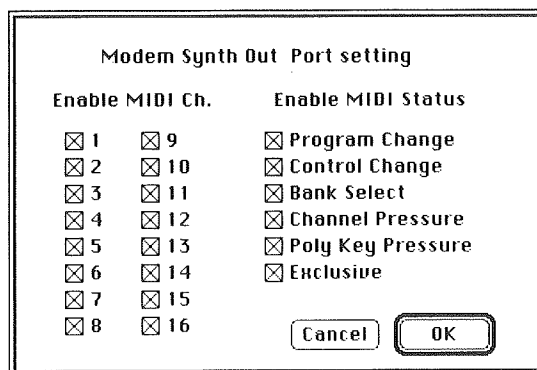
If "1MHz" is selected as the Interface Type, the Synth Out Port will disappear. Messages sent to the MIDI Out Port will produce sound from the AG-10 tone generator and also be sent to the MIDI Out Jack on the back panel of the AG-10.



3. Set the "Interface Type" for the port to which the AG-10 is connected to "KORG PCIF" (or to "1MHz"). If an ordinary MIDI interface is connected to the port, select a clock rate that matches the interface (usually this will be 1 MHz).

4. In order to use the Modem or Printer ports, the Corresponding "Port Enabled" box(es) must be checked. The "Synth Out Port" is available only if "KORG PCIF" has been selected for the interface type.

5. Pressing the “Out Port Setting” button displays the dialog box shown below. In this box, you can select the MIDI channels/messages to be output to each of the ports. Only channels/messages that have been checked will be output.



The dialog box is titled "Modem Synth Out Port setting". It contains two columns of checkboxes. The first column is labeled "Enable MIDI Ch." and lists channels 1 through 16. The second column is labeled "Enable MIDI Status" and lists various MIDI messages. At the bottom right, there are "Cancel" and "OK" buttons.

Modem Synth Out Port setting	
Enable MIDI Ch.	Enable MIDI Status
<input checked="" type="checkbox"/> 1	<input checked="" type="checkbox"/> Program Change
<input checked="" type="checkbox"/> 2	<input checked="" type="checkbox"/> Control Change
<input checked="" type="checkbox"/> 3	<input checked="" type="checkbox"/> Bank Select
<input checked="" type="checkbox"/> 4	<input checked="" type="checkbox"/> Channel Pressure
<input checked="" type="checkbox"/> 5	<input checked="" type="checkbox"/> Poly Key Pressure
<input checked="" type="checkbox"/> 6	<input checked="" type="checkbox"/> Exclusive
<input checked="" type="checkbox"/> 7	
<input checked="" type="checkbox"/> 8	
<input checked="" type="checkbox"/> 9	
<input checked="" type="checkbox"/> 10	
<input checked="" type="checkbox"/> 11	
<input checked="" type="checkbox"/> 12	
<input checked="" type="checkbox"/> 13	
<input checked="" type="checkbox"/> 14	
<input checked="" type="checkbox"/> 15	
<input checked="" type="checkbox"/> 16	

Cancel OK

6. Drag the mouse from the arrow on the Out Port of the MIDI application (sequencer, etc.) and connect it to the “Synth Out Port” of the Korg MIDI Driver. Other ports can be connected in the same way if necessary.

- For information on using the PatchBay program, please refer to the application instruction manual included with the PatchBay program, or see the description under “About PatchBay...” in the Apple menu.

MIDI File Translator

MIDI File Translator is an Apple File Exchange translation program that allows Macintosh MIDI programs to recognize MS-DOS Standard MIDI files.

- You do not need this application program to operate the KORG MIDI driver.

Make a copy of MIDI File Translator in the folder that contains Apple File Exchange. Choose “MIDI File Translation” in the “MS-DOS ⇒ Mac” menu that is displayed when you launch Apple File Exchange and insert an MS-DOS disk. If “MIDI File Translation” is not displayed, first choose “Other Translations...”, then add “MIDI File Translation”.

- ◆ For details, see the Apple File Exchange documentation in your Apple manual.

Reference

Troubleshooting

Power indicator does not light when the POWER switch is turned on.	<ul style="list-style-type: none"> • Is the adaptor cable plugged in the unit and outlet? See page 8.
No sound	<ul style="list-style-type: none"> • Are the amplifier or headphones connected to the correct jack(s)? See page 8. • Has the master volume been turned up? See page 12. • Are the MIDI and other cables connected correctly? See pages 8–11.
Cannot control using MIDI	<ul style="list-style-type: none"> • Are the MIDI cables connected correctly? See page 9.
Cannot control using a computer	<ul style="list-style-type: none"> • Are the cables connected correctly? See pages 10, 11. • Is the HOST Select switch set correctly? See pages 10, 11.
<p>The sound is not correct</p> <p>The pitch is not correct</p>	<ul style="list-style-type: none"> • Is the performance data GM-compatible? • These symptoms may sometimes occur if the settings (such as Control changes) of the previous song remain effective for the song currently being played, or if you started playing a song halfway through. <p>Turn the power off, then turn it on, and start playing from the beginning of the song.</p>
The sound does not stop	<ul style="list-style-type: none"> • This may happen if the data carries an error. Turn the power off, then turn it on.

MIDI Implementation

RECOGNIZED RECEIVE DATA

1. Channel Messages

Status	Second	Third	Description
1000 rrrr	0kkk kkkk	0xxx xxxx	* Note Off
1001 rrrr	0kkk kkkk	0000 0000	* Note Off
1001 rrrr	0kkk kkkk	0vv vvv	* Note On (vv vvv = 1 to 127)
1011 rrrr	0000 0000	0bbb bbbb	* Bank Select MSB
1011 rrrr	0000 0001	0vv vvv	* Modulation 1 (Pitch)
1011 rrrr	0000 0010	0vv vvv	* Modulation 2 (VDP)
1011 rrrr	0000 0110	0vv vvv	* Data Entry MSB (for RPN)
1011 rrrr	0000 0111	0vv vvv	* Volume
1011 rrrr	0000 1010	0vv vvv	* Panpot
1011 rrrr	0000 1011	0vv vvv	* Expression
1011 rrrr	0010 0000	0bbb bbbb	* Bank Select LSB
1011 rrrr	0010 0110	0vv vvv	* Data Entry LSB (for RPN)
1011 rrrr	0100 0000	0bx xxxx	* Damper Off
1011 rrrr	0100 0000	0xx xxxx	* Damper On
1011 rrrr	0100 1000	0vv vvv	* Sound Control 3 (Release Time)
1011 rrrr	0100 1001	0vv vvv	* Sound Control 4 (Attack Time)
1011 rrrr	0100 1010	0vv vvv	* Sound Control 5 (Brightness)
1011 rrrr	0101 0101	0vv vvv	* Effect 1 Depth (Reverb)
1011 rrrr	0101 1101	0vv vvv	* Effect 3 Depth (Chorus)
1011 rrrr	0110 0000	0000 0000	* Data Increment (for RPN)
1011 rrrr	0110 0001	0000 0000	* Data Decrement (for RPN)
1011 rrrr	0110 001x	0bx xxxx	(Cancel RPN)
1011 rrrr	0110 0100	0000 0001	* RPN Parameter Number LSB
1011 rrrr	0110 0101	0000 0000	* RPN Parameter Number MSB
1011 rrrr	0111 1000	0000 0000	* All Sound Off
1011 rrrr	0111 1001	0000 0000	* Reset All Controllers
1011 rrrr	0111 1011	0000 0000	* All Notes Off
1011 rrrr	0111 11xx	0bx xxxx	(All Notes Off)
1100 rrrr	0ppp pppp		* Program Change
1101 rrrr	0vv vvv		* Channel Pressure (After Touch)
1110 rrrr	0bbb bbbb	0bbb bbbb	* Bender Change

rrrr = 0 - 15 : MIDI Channel 1 - 16

*: General MIDI Level 1 messages

2. RPN (Registered Parameter Number)

Number	Description
00 00	* Pitch Bend Range (0 to 12)
00 01	* Fine Tuning
00 02	* Coarse Tuning (24 to +24)

3. System Realtime Message

Status	Description
1111 1110	Active Sensing
4. Universal System Exclusive Messages	
(1) * GM Mode On	
Data	Description
1111 0000	(F0) System Exclusive
0111 1110	(7E) Universal Non Realtime
0ccc cccc	(cc) Device ID (cc = 00 or 7F)
0000 1001	(69) General MIDI
0000 0001	(01) GM Mode On
1111 0111	(F7) EXX
(2) Master Volume	
Data	Description
1111 0000	(F0) System Exclusive
0111 1111	(7F) Universal Realtime
0ccc cccc	(cc) Device ID (cc = 00 or 7F)
0000 0100	(04) Device Control
0000 0001	(01) Master Volume
0ddd dddd	(dd) Data LSB
0ddd dddd	(dd) Data MSB (7F/7F: Max. 00/00: Min)
1111 0111	(F7) EXX
(3) Master Balance	
Data	Description
1111 0000	(F0) System Exclusive
0111 1111	(7F) Universal Realtime
0ccc cccc	(cc) Device ID (cc = 00 or 7F)
0000 0100	(04) Device Control
0000 0010	(02) Master Balance
0ddd dddd	(dd) Data LSB
0ddd dddd	(dd) Data MSB (7F/7F: Hard Right, 00/00: Center, 00/00: Hard Left)
1111 0111	(F7) EXX

5. System Exclusive Messages

(1) Program Parameter Dump

Data	Description
1111 0000	(F0) System Exclusive
0100 0010	(42) Korg ID
0011 0000	(30) Device ID
0011 0100	(34) AG-10 ID
0100 0000	(40) Program Parameter Dump
0ggh ddbb	MSB of Data 0 - 6
0aaa aaaa	Lower 7bits of Data 0
0bbb bbbb	Data 1
0ccc cccc	Data 2
0ddd dddd	Data 3
0eee eeee	Data 4
0fff ffff	Data 5
0ggg 9999	Data 6
0nnn kllh	MSB of Data 7 - 13
0rhh hhhh	Lower 7bits of Data 7
0000 zyxw	MSB of Data 112 - 115
0www wwww	Lower 7bits of Data 112
0xxx xxxx	Data 113
0yyy yyyy	Data 114
0zzz zzzz	Data 115
1111 0111	(F7) EXX (138 bytes total)

This program is called by 7857th Bank(8200), Program 97, i.e. Bn 00 3E 20 00 Ch 00.

PROGRAM BANK MAP

MSB	LSB	Description	Examples
38 - 39	xx	7162: GM Sound Set	Bn 00 38 20 00 Ch pp
3A - 3D	xx	8192: OFF	
3E	xx	7837: GM Percussion	Bn 00 3E 20 00 Ch 00
3F	xx	8192: OFF	Bn 00 3F 20 7F Ch 7F

PROGRAM MAP

Bank	Value	Description
7169	00 - 7F	1 - 128: GM Sound Set
7837	00 - 0F	1: GM Kit
	10 - 17	17: Power Kit
	18	28: Analog Kit
	19	1: GM Kit
	1A - 27	1: GM Kit
	28 - 2F	41: Brush Kit
	30 - 5F	1: GM Kit
	60 - 6F	97: Downloaded Program
	70 - 7F	1: GM Kit

Program Parameters

No.	Parameter	Value (2's comp)
<OSCILLATOR>		
0	bio-1: Mode	0(Single), 1(Double), 2(Churn)
	bio3: Hold	0(Off), 1(On)
1	OSC1 Multisound	0-117
2	OSC1 Octave	-2-1
3	OSC2 Multisound	0-117
4	OSC2 Octave	-2-1
5	Interval	12-12
6	Detune	-50-50
7	Delay Start	0-99
<PITCH EG>		
8	Start Level	-99-99
9	Attack Time	0-99
10	Attack Level	-99-99
11	Decay Time	0-99
12	Release Time	0-99
13	Release Level	-99-99
14	Time VelSens	-99-99
15	Level VelSens	-99-99
<VDF MG>		
16	bio-2: Wavform	0(Tri), 1(SawUp), 2(SawDn), 3(Sq), 4(Random)
	bio3: OSC1	0(Off), 1(On)
17	Frequency	0-99
18	Delay	0-99
19	Intensity	0-99
<AFTERTOUCH>		
20	AT Band Range	-12-12
21	ART VDF Cutoff	-99-99
22	ART VDF MG	0-99
23	ART VDA Amp	-99-99
<MODULATION>		
24	Band VDF Swoop	-99-99
25	Mod2 VDF MG	0-99
<OSC1 PITCH EG>		
26	OSC1 PEG Int	-99-99
<OSC1 PITCH MG>		
27	bio-2: Wavform	0(Tri), 1(SawUp), 2(SawDn), 3(Sq), 4(Random)
	bio3: MG KeySync	0(Off), 1(On)
28	Frequency	0-99
29	Delay	0-99
30	Fade In	0-99
31	Intensity	0-99
32	Freq KbdTrack	-99-99
33	ART Intensity	0-99
34	Mod1 Pitch MG	0-99
35	ART+Mod1 Freq	0-9

PC Interface Technical Notes

Switch Setting	Description
PC1	Asynchronous 31.25KBPS 8 bit, 1 stop bit, No parity bit
PC2	Asynchronous 38KBPS 8 bit, 1 stop bit, No parity bit

All MIDI messages described in the MIDI Implementation are also received from PC Interface. In addition, messages listed below are recognized.

(1) Device Inquiry

Data	Description
F0 7E c 05 01 F7	Device Inquiry (c = 00 or 7F) Replies via PC IF: F0 7E 00 06 02 42 34 00 00 00 00 01 00 F7 where rr is ROM version No.

(2) Line Control Commands

Data	Description
B0 7A 00	Disable MIDI IN to TG connection
B0 7A 7F	Enable MIDI IN to TG connection
F5 00	Enable PC IF to TG and PC IF to MIDI OUT connection
F5 01	Enable PC IF to MIDI OUT and disable PC IF to TG connection
F5 02	Enable PC IF to TG and disable PC IF to MIDI OUT connection
F5 F5	Transmit one F5 from MIDI OUT
F5 FF	Transmit one FF from MIDI OUT
FF	No operation

On default, all messages from PC IF are recognized by the TG (none generator) inside AG-10. After the reception of F5 01, all following messages will be ignored by the TG.

On default, all messages from PC IF except FF and F5 xx are also echoed back to MIDI OUT. After the reception of F5 02, all following messages will be sent only to TG and not echoed back to MIDI OUT.

Example:

F5 02 90 3C 40 F5 01 90 3E 40 F5 00 90 40 40

will turn on C(3C) and E(40) notes on AG-10, and transmit note on messages for D(9E) and E(40) from MIDI OUT.

All messages from MIDI IN are always sent to host via PC IF. On default, all messages from MIDI IN are recognized by the TG as well. After the reception of B0 7A 00 from PC IF, all following messages will be ignored by the TG. B0 7A 7F will reset to normal operation.

Notes:

1. No handshake means are provided between AG-10 and the host PC. It is host's responsibility to receive data from the PC IF without overrun.
2. In case PC2(38KBPS) is used, since AG-10 has very limited amount of MIDI OUT buffer, buffer overrun will easily occur if data stream to be MIDI OUT is sent via PC IF full in bandwidth. To avoid this, host may insert dummy FF messages every 4th bytes, which will not be transmitted from MIDI OUT.
3. If Line Control is used in an application program, it should be reset to normal state with F5 00 / B0 7A 7F messages after its execution.
4. The F5 xx messages should never be placed in portable sequence files, since they are not legal MIDI messages.
5. Korg MIDI Drivers insert all required messages described above.

(3) A/D Mode (Internal use)

Data	Description
F0 42 30 34 42 01 F7	Enter A/D Mode
F0 42 30 34 42 00 F7	Exit A/D Mode

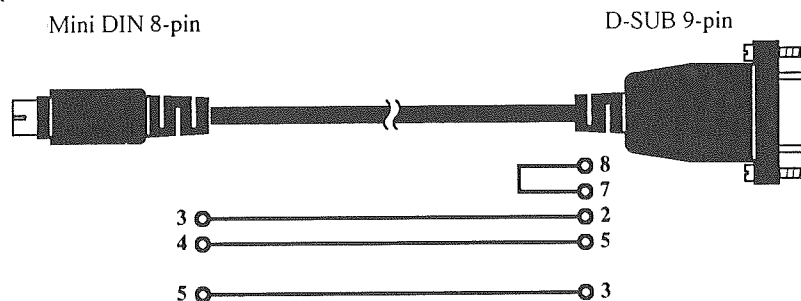
After the reception of the Enter A/D Mode message,

1. Clock rate changes to 312.5KBPS, and 1Mhz Clock changes to 312.5KHz x1 Clock.
2. A/D data which represent AUX IN (8bit mono, Fs = 22.25K) are sent to the host every 45us as rate 8 bit data bytes, not in MIDI format.
3. MIDI In data are not sent to the host.
4. Host may send MIDI data as usual, provided they are sent no faster than MIDI's data density (3 bytes/ms).

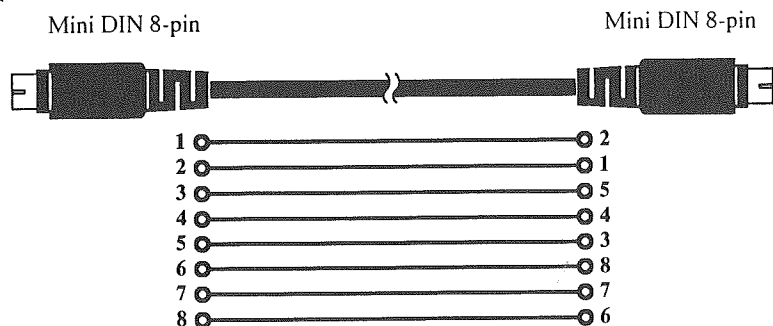
The Exit A/D Mode message (on 312.5KBPS clock) let it back to normal mode.

Wiring Diagram of Dedicated Connecting Cables

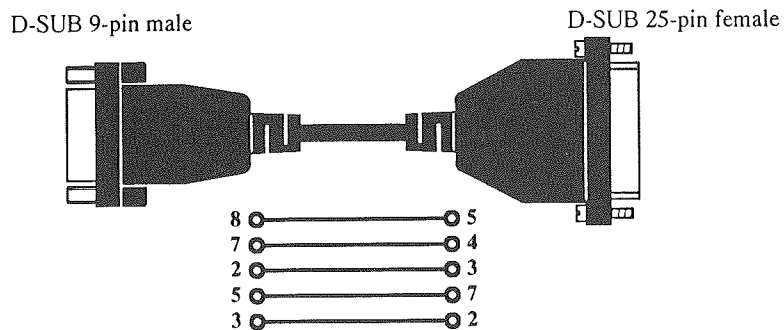
(1) AG-001 (for IBM PC or Compatible)



(2) AG-002 (for Macintosh)



(3) AG-004 (Adapter for IBM PC or Compatible)



Voice List

Sound set

PC#	Instrument	PC#	Instrument	PC#	Instrument	PC#	Instrument
1	Piano	34	Deep Bass	67	Tenor Sax	*100	Atmosphere
2	BritePiano	35	Pick Bass	68	Bari Sax	*101	Brightness
*3	HammerPno	36	Fretless	69	Sweet Oboe	*102	Goblin
*4	HonkeyTonk	37	SlapBass 1	70	EnglishHrn	103	Echo Drop
5	New Tines	38	SlapBass 2	71	BasoonOboe	*104	Star Theme
6	Digi Piano	*39	SynthBass1	72	Clarinet	*105	Sitar
7	Harpsicord	40	SynthBass2	73	Piccolo	106	Banjo
8	Clav	41	Violin	74	Flute	107	Shamisen
9	Celesta	42	Viola	75	Recorder	108	Koto
10	Glocken	43	Cello	76	Pan Flute	109	Kalimba
11	Music Box	44	ContraBass	77	Bottle	*110	Scotland
12	Vibes	45	TremoloStr	78	Shakuhachi	*111	Fiddle
13	Marimba	46	Pizzicato	79	Whistle	112	Shanai
14	Xylophon	47	Harp	80	Ocarina	113	Metal Bell
15	Tubular	48	Timpani	*81	SquareWave	114	Agogo
16	Santur	49	Marcato	*82	Saw Wave	115	SteelDrums
17	Full Organ	50	SlowString	*83	SynCaliope	116	Woodblock
*18	Perc Organ	*51	Analog Pad	*84	Syn Chiff	*117	Taiko
19	BX-3 Organ	52	String Pad	*85	Charang	118	Tom
20	ChurchPipe	53	Choir	*86	AirChorus	119	Synth Tom
21	Positive	54	Doo Voice	*87	Rezzo4ths	120	Rev Cymbal
22	Musette	55	Voices	*88	Bass&Lead	121	Fret Noise
23	Harmonica	56	Orch Hit	*89	Fantasia	122	NoiseChiff
24	Tango	57	Trumpet	90	Warm Pad	*123	Seashore
25	ClassicGtr	58	Trombone 1	*91	Poly Pad	*124	Birds
26	A.Guitar	59	Tuba	92	Ghost Pad	*125	Telephone
27	JazzGuitar	60	Muted Trpt	*93	BowedGlas	*126	Helicopter
28	Clean Gtr	*61	FrenchHorn	*94	Metal Pad	*127	Stadium!!
29	MuteGuitar	62	Brass	*95	Halo Pad	128	GunShot
30	Over Drive	*63	SynBrass 1	96	Sweep	* Double Mode Program	
31	DistGuitar	*64	SynBrass 2	*97	Ice Rain		
*32	RockMonics	65	SopranoSax	*98	SoundTrack		
33	Jazz Bass	66	Alto Sax	*99	Crystal		

Percussion map

Key	PC#	GM Kit (1~16)	*Ex. asn	Power Kit (17 - 24)	*Ex. asn	Analog Kit (26)	*Ex. asn	Brush Kit (41~48)	*Ex. asn
	27	—	—	—	—	—	—	—	—
	28	—	—	—	—	—	—	—	—
	29	—	—	—	—	—	—	—	—
	30	—	—	—	—	—	—	—	—
	31	Sticks	Off	Sticks	Off	Sticks	Off	Sticks	Off
	32	Click	Off	Click	Off	Click	Off	Click	Off
	33	MetronomeClick	Off	MetronomeClick	Off	MetronomeClick	Off	MetronomeClick	Off
	34	MetronomeBell	Off	MetronomeBell	Off	MetronomeBell	Off	MetronomeBell	Off
	35	Real Kick	Off	Real Kick	Off	Real Kick	Off	Real Kick	Off
C2	36	ProcesKick	Off	Metal Kick	Off	Syn Kick 1	Off	Rock Kick	Off
	37	Side Stick	Off	Side Stick	Off	Syn Rim	Off	Side Stick	Off
	38	Rock Snare	Off	PowerSnare	Off	Syn Snare1	Off	Brush Tap	Off
	39	Hand Claps	Off	Hand Claps	Off	Syn Claps	Off	Brush Slap	Off
	40	LightSnare	Off	GatedSnare	Off	Syn Snare2	Off	BrushSwish	Off
	41	Tom Lo	Off	ProcessTom	Off	SynTom1 Lo	Off	Brush Tom	Off
	42	Tite HH	Group1	Tite HH	Group1	CloseSynHH	Group1	Tite HH	Group1
	43	Tom Lo	Off	ProcessTom	Off	SynTom1 Lo	Off	Brush Tom	Off
	44	Pedal HH	Group1	Pedal HH	Group1	CloseSynHH	Group1	Pedal HH	Group1
	45	Tom Lo	Off	ProcessTom	Off	SynTom1 Lo	Off	Brush Tom	Off
	46	Open HH	Group1	Open HH	Group1	Open SynHH	Group1	Open HH	Group1
	47	Tom Hi	Off	ProcessTom	Off	SynTom1 Lo	Off	Brush Tom	Off
C3	48	Tom Hi	Off	ProcessTom	Off	SynTom1 Lo	Off	Brush Tom	Off
	49	Crash Cym	Off	Crash Cym	Off	Open SynHH	Off	Crash Cym	Off
	50	Tom Hi	Off	ProcessTom	Off	SynTom1 Lo	Off	Brush Tom	Off
	51	Ride Edge	Off	Ride Edge	Off	Ride Edge	Off	Ride Cym 2	Off
	52	China Cym	Off	China Cym	Off	China Cym	Off	China Cym	Off
	53	Ride Cup	Off	Ride Cup	Off	Ride Cup	Off	Ride Cym 1	Off
	54	Tambourine	Off	Tambourine	Off	Tambourine	Off	Tambourine	Off
	55	Splash Cym	Off	Splash Cym	Off	Splash Cym	Off	Splash Cym	Off
	56	Cowbell	Off	Cowbell	Off	SynCowbell	Off	Cowbell	Off
	57	Crash Cym	Off	Crash Cym	Off	Crash Cym	Off	Crash Cym	Off
	58	Vibraslap	Off	Vibraslap	Off	Vibraslap	Off	Vibraslap	Off
	59	Ride Edge	Off	Ride Edge	Off	Ride Edge	Off	Ride Cym 1	Off
C4	60	Hi Bongo	Off	Hi Bongo	Off	Hi Bongo	Off	Hi Bongo	Off
	61	Lo Bongo	Off	Lo Bongo	Off	Lo Bongo	Off	Lo Bongo	Off
	62	Mute Conga	Off	Mute Conga	Off	SynTom1 Hi	Off	Mute Conga	Off
	63	Open Conga	Off	Open Conga	Off	SynTom1 Hi	Off	Open Conga	Off
	64	Open Conga	Off	Open Conga	Off	SynTom1 Hi	Off	Open Conga	Off
	65	Hi Timbal	Off	Hi Timbal	Off	Hi Timbal	Off	Hi Timbal	Off
	66	Lo Timbal	Off	Lo Timbal	Off	Lo Timbal	Off	Lo Timbal	Off
	67	Agogo	Off	Agogo	Off	Agogo	Off	Agogo	Off
	68	Agogo	Off	Agogo	Off	Agogo	Off	Agogo	Off
	69	Cabasa	Off	Cabasa	Off	Cabasa	Off	Cabasa	Off
	70	Maracas	Off	Maracas	Off	SynMaracas	Off	Maracas	Off
C5	71	Whistle S	Group2	Whistle S	Group2	Whistle S	Group2	Whistle S	Group2
	72	Whistle L	Group2	Whistle L	Group2	Whistle L	Group2	Whistle L	Group2
	73	Guio S	Group3	Guio S	Group3	Guio S	Group3	Guio S	Group3
	74	Guio L	Group3	Guio L	Group3	Guio L	Group3	Guio L	Group3
	75	Claves	Off	Claves	Off	Syn Claves	Off	Claves	Off
	76	WoodBlock2	Off	WoodBlock2	Off	WoodBlock2	Off	WoodBlock2	Off
	77	WoodBlock3	Off	WoodBlock3	Off	WoodBlock3	Off	WoodBlock3	Off
	78	Mute Cuica	Group4	Mute Cuica	Group4	Mute Cuica	Group4	Mute Cuica	Group4
	79	Open Cuica	Group4	Open Cuica	Group4	Open Cuica	Group4	Open Cuica	Group4
	80	MuteTriang	Group5	MuteTriang	Group5	MuteTriang	Group5	MuteTriang	Group5
	81	OpenTriang	Group5	OpenTriang	Group5	OpenTriang	Group5	OpenTriang	Group5
	82	Cabasa	Off	Cabasa	Off	Cabasa	Off	Cabasa	Off
C6	83	JingleBell	Off	JingleBell	Off	JingleBell	Off	JingleBell	Off
	84	Bell Tree	Off	Bell Tree	Off	Bell Tree	Off	Bell Tree	Off
	85	Castanet	Off	Castanet	Off	Castanet	Off	Castanet	Off
	86	Side Stick	Group6	Side Stick	Group6	Side Stick	Group6	Side Stick	Group6
	87	Taiko Lo	Group6	Taiko Lo	Group6	Taiko Lo	Group6	Taiko Lo	Group6

*Exclusive assign : Notes that have the same group number will cut each other off.

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AG-10 MIDI Implementation Chart

Function ...	Transmitted *1	Recognized	Remarks
Basic Channel			
Default Changed		1~16 1~16	
Mode			
Default		3	
Messages Altered	*****	X	
Note Number :			
Tune voice	*****	0~127 0~127	
Velocity		○ 9n, V=1~127 X	
After Touch		X ○	
Pitch Bender		○	
Control			
0, 32		○	Bank Select (MSB, LSB)
1, 2		○	Mod Wheel
6, 38, 96, 97, 100, 101		○	RPN
7		○	Volume
10		○	Pan Pot

Change	64 72, 73, 74 91, 93 120 121		<input type="radio"/> Damper <input type="radio"/> Sound Control (Release, Attack, Brightness) <input type="radio"/> Effect depth <input type="radio"/> All sound off <input type="radio"/> Reset All Contrls
Prog Change : True #		*****	<input type="radio"/> 0~127 <input type="radio"/> 0~127
System Exclusive			<input type="radio"/>
System Common : Song Pos : Song Sel : Tune			X X X
System Real Time : Clock : Commands			X X
Aux Messages : Local ON/OFF : All Notes OFF : Active Sense : Reset			X <input type="radio"/> (123~127) <input type="radio"/> X
Notes	* 1 Data transmitted from the PC interface will be output.		

Mode 1 : OMNI ON, POLY Mode 3 : OMNI OFF, POLY ☐ : Yes
Mode 2 : OMNI ON, MONO Mode 4 : OMNI OFF, MONO X : No

SPECIFICATIONS AND OPTIONS

Tone generation method	AI ² Synthesis System (full digital processing)
Tone generator	32 voices, 32 oscillators (Single mode) 16 voices, 32 oscillators (Double mode)
Waveform memory	PCM 4Mbyte
Effects	Reverb, Chorus
Programs	128 Programs, 4 Drum kits
Outputs	L, R (RCA jack), headphones (stereo mini jack)
Inputs	L, R (RCA jack)
MIDI	In, Out, Thru
Communication terminal	Personal Computer Interface (TO HOST)
HOST select	PC1, PC2
Power consumption	DC12V
Power consumption	400mA
Dimensions	218 (W) × 235.5 (D) × 45 (H)mm
Weight	1.05kg
Accessories	AC adapter, audio cables, desk stand

* Appearance and specifications are subject to change without notice , for product improvement.

Options :

AG-001 MIDI Driver / Connector for IBM PC and compatibles

AG-002 MIDI Driver / Connector for Macintosh

AG-004 Adapter for IBM PC and compatibles

Rack mount kit RA-01

Powered Monitor PM-15G, PM-5

NOTICE

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