

MIDI CONTROLLER OPTIONS for KORG iMS20 iPad & MS20ic (Legacy Collection) SOFTWARE (2019)

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INTRODUCTION

The ideal MIDI controller for both the Korg iMS20 iPad app and the MS20ic (Legacy) Collection software is the Korg MS20ic hardware controller. Indeed, the MS20ic controller, when purchased new, is bundled with the MS20ic software.

What, however, if you find yourself with the controller, but not software to complement it? You have two choices: 1) You can purchase the MS20ic Collection software for \$50US from <https://korg.shop/korg-collection-ms-20.html>, and perform on a Mac or PC; 2) you can buy the iMS20 iPad app (30\$US on iTunes), and perform on any iPad.

On the other hand, what if you have an iPad and the iMS20 app, or a Mac/PC and the Korg Legacy Collection (MS20ic) software? Assuming you didn't just want "finger it" (actually perform live) on the iPad, what controller(s) could you use? Again, two options: 1) purchase a used MS20ic controller (often found *without* MS20ic Collection software; this is the optimal solution); 2) take the programmable controller(s) you already have (hopefully with lots of knobs and/or sliders), and configure them to perform the software. Obviously this second option is labor intensive and far less user-friendly; however it is also considerably less expensive. (Please note that throughout I will be discussing *knobs/sliders*, not encoders; the Korg hardware and software do not include encoders.)

This article explores the varied options above. My goal here is to emulate the legendary, live-performance, standalone Korg MS-20 synthesizer. While the Legacy Collection software expands modestly on the original's capability, the iPad iMS20 app does so in a major, even massive way. (Many readers will be richly rewarded by exploring this app - in effect a small, self-contained production studio.)

THE MS20ic CONTROLLER

One of the advantages of purchasing a *new* MS-20ic controller is that the required Korg Collection software is included with it. A set of 8 monaural mini-phone patchcords also comes in the package. To explore the full potential of the controller, you probably need some of these (my compositions require seven). The cords are approximately one-foot long, and I recommend a set with each cord a different color. (It is easier to understand a complicated patch with the separate colors.) Unfortunately, new controllers come with all yellow patchcords. Multi-colored sets of cords, however, can easily be found on eBay or Amazon (search for "1/8 inch (3.5mm) mono modular patch cables").

WITH MS20ic (LEGACY) COLLECTION SOFTWARE (Mac/PC)

As mentioned above, the pairing of MS20ic controller with its software counterpart in the (Legacy) Collection is ideal for live-performance software emulation of the legendary MS-20 synthesizer. Any other pairing pales in comparison.

First, prepare and patch the MS20ic controller to your desired initial settings. To pair hardware and software: plug in the controller to your computer via USB, then start the installed MS-20 software. It now either "discovers" the controller, or will give you a "cannot find" message (ignore it). On the software GUI, click on System | Preferences | MIDI Settings. Here you can either select your discovered "MS-20" as MIDI IN Device 1, or choose to Rescan devices - whereupon your device *will* be discovered, and you can then select it.

As soon as you switch power on with the controller's VOLUME knob, your settings and patches will appear on the computer GUI, and sound will be activated. (If power was already switched on, you'll need to turn VOLUME off, then on again.)

Note that the controller's keyboard automatically transfers its note data to the software. (The MS20ic's keyboard is also velocity sensitive, as is the original MS20 synth. The software can make use of these velocity data, but only through special programming. To access this capability: click the software's Edit button and scroll the GUI to its far left. There you will see an External Modulation section with two Source columns; the MS20ic is Source 1. Select Velocity from the pull-down menu in the green box (Source 1). Then apply the amount of velocity you want to modulate any of the five parameters. For normal peak amplitude of "notes", select the bottom control. (Please note that velocity-sensitive keyboards, including the MS20ic, act differently with the iMS20 app. The app automatically routes velocity data to externally control the VCA [pre-VOLUME] output; no other application is available. This behavior mimics the original synth.)

WITH iPad iMS20 APP

Note first that downloading the appropriate version of the app for earlier iPads can be a bit of a challenge. An iTunes account is of course required to download apps to an iPad; upon payment of \$30US, the app will immediately appear on your iPad *if the current version of the app is compatible with your tablet*. If not, your purchase is aborted (without charge).

What to do in this case: under your iTunes account, purchase the app on a later iPad or Mac/PC; your purchase will be saved in your account. Return to your earlier iPad and again locate the app on iTunes (App store). It will now have an Install (rather than a Price) button. Click it, and instead of an abort/incompatibility message, you'll be asked if you want to install an *earlier/compatible version*. Click Yes, and you'll be ready to go. Do not be concerned if along the way you receive a variety of incompatibility warnings - both with the interface(s) and the controller. Be assured that everything will work anyway. One message needs to be taken seriously: "Cannot Use Device (too much power required)." It means that you must add a powered USB HUB to your setup.

Initially interfacing the MS20ic to the iPad is a fairly complicated process: 1) you need a (Camera) Connection Kit - *the appropriate kit for your model iPad*. iPads 1 - 3 require a kit with the 30-pin connector; iPad 4+ need the Lightning connector. 2) You also need a powered USB hub. All iPads limit accessory inputs to no more than 100mA current, and the MS20ic controller requires more (so do many, if not most, MIDI controllers).

It is possible to get a powered USB HUB and Connection Kit in a single unit (though one with a 30-pin connector is fairly difficult to find). Note that the power to the HUB will need either a USB connection to a computer, and/or an AC adapter to plug into a wall socket. (The necessary power cable may or may not come with the HUB.)

Initial iPad Setup

Turn on your iPad, and before bringing up the iMS20 app, click Settings, then General and Auto-Lock - making sure the latter is set (for now) to *Never*. (Otherwise, the app will shut off at whatever time is set here - likely in the middle of your performance!) Needless to say, begin with your iPad well charged.

Now bring up your app. Under Synth Edit, click Effect and if On, click Off (and relick Effect).

Prepare and patch the MS20ic controller to your desired initial settings, and connect everything (including the powered USB HUB) to the iPad. (On a Camera Connector Kit, be sure the side switch is set to USB rather than Card.) Finally, turn the controller's Volume knob (Off then) On. All the settings and patch cord connections are immediately transferred to the iPad and you are ready to go.

OTHER MIDI CONTROLLERS

Any other MIDI controller must be programmed to send control messages that correspond to the GUI controls of the MS20 represented in the software. A sheet identifying these continuous controller (CC) messages follows this article. (The appropriate values are also included in the complete Korg iMS20 MIDI implementation spec found here: [https://www.korg.com/us/support/download/manual/0/179/2674/.](https://www.korg.com/us/support/download/manual/0/179/2674/))

Note, first of all, that only certain types of control mechanisms are relevant. Knobs, and sliders (which functionally replicate knobs) are crucial; encoders are useless. Pads too are useless, because their On and Off CC values are not programmable; many buttons are eliminated for the same reason. Buttons that *do* meet this criterion of programmability are useful only as a possible alternative for knobs (or sliders) representing the VCO Wave Form and Scale controls. A MIDI keyboard can be useful, especially if it includes velocity sensitivity, but *only* as a keyboard, not usually as a set of buttons. (The softwares' Push Button cannot readily be activated by any device other than the MS20ic.)

Appropriate MIDI controllers must contain the sufficient number of hardware knobs and/or sliders that you intend to actively use. (The total complement of knobs on the MS20 is 37, including the (possibly "optional") Volume, Portamento and Master Tune. Four programmable buttons each can readily be substituted for four of these knobs, however.) Note that the MS20's pushbutton cannot readily be externally operated, though the Wheel certainly can (it is very useful, and is included in the above count). Also note that any MIDI keyboard automatically transfers its messages, including velocity sensitivity (if present), directly to the MS20 software - no programming required. (The original MS-20's keyboard is velocity sensitive; those in software, of course, are not.)

If one MIDI controller is not enough, up to three can be used simultaneously via USB connection. (More than one device per iPad requires a USB HUB.) MIDI controllers that singly come closest to covering all the MS20's continuous controllers (no keyboard) are: Novation Launch Control XL, Evolution 33(e), Akai MIDIMIX and Doepfer Drehbank (used with its AC power supply and a MIDI-to-USB converter cable). Note: Of these, only the Launch Control XL and Drehbank will work on the iPad iMS20 app without a USB HUB (see further below). (Indeed, for the iPad, the Launch Control XL is the only reasonably-priced MIDI controller I know of, that covers *all* of the iMS20's controls - except for keyboard and Portamento - with

only a Connection Kit and USB cable. It does this with 8 sliders, 24 knobs, and 16 of its 24 available buttons. In addition, the Evolution 33[e] and Akai MIDIMIX are two other lower-cost, compact devices that cover these same controls - but with either an additional power supply and MIDI-to-USB adapter cable, or powered HUB.)

GENERAL PROGRAMMING OF THE CONTROLLER(S)

The first thing to do is to determine how many and which controls you wish to use with either software package, and which hardware controllers you have that will handle them. (The controls you don't intend to use will be preset to zero or some other static value in the software.) Next, think about how to group and arrange them on your hardware.

Hardware controllers are usually presented in rows of 8 knobs or sliders. It helps me to have each row correspond to a single functional group: one for oscillators, one for filters, one for envelope generators, and another (optional) for external signal processing plus miscellaneous items - including Volume, Wheel, and Portamento (if using a MIDI keyboard).

It is easy to identify the two columns of filter controls (8) as a single row, and equally for envelope controls (also 8). For the oscillators, there are several possibilities, depending on how many (up to 16) buttons you have available. (Note that buttons are useful in this context (and thus are "counted" for a device), *only if their On and Off values can be programmed*.) The arrangement I prefer is: VCO1 PW, VC02 Pitch, VCO Mixer (2), FM (2) and MG (2) controls in a row. The other 4 VCO1 and 2 controls are assigned to 16 buttons.

If the two VCO Scale values are static (preset them instead), another arrangement for a single row is: as above, but include both VCO Wave Form controls. (You could also assign the Scale parameters to a set of 8 buttons.) I think that either way (knob or buttons) of handling the Wave Form and Scale controls works well, and is simply a matter of user preference. If you want all the VCO controls on knobs rather than buttons, find somewhere else to place the two MG controls, probably somewhere in a fourth row (if you have one), in with the External Signal Processors (these 5 knobs are perhaps the least likely to be needed).

Many MIDI controllers have Volume and Modulation sliders; it is intuitive to pair these with the MS20's Volume and Wheel controls (though the external device might alternatively accommodate the two "orphaned" MG controls mentioned above).

All this is to suggest how to include *all*, or nearly all, the MS20's controls on a single MIDI device. Practically, you either: 1) will not need to manipulate all of them (presetting the others), or 2) will parse out the various controls to more than a single controller, possibly including a MIDI keyboard (note that keys cannot normally substitute for buttons, however).

If you only require a limited number of controls (including perhaps some buttons) or are using more than one MIDI controller, I can recommend many other inexpensive devices that offer a minimum of 8 knobs/sliders, and (importantly for the iMS20 iPad app) are USB only, but *do not require a HUB*: Novation Launch Control (16 knobs, 12 buttons), Nakedboards MC-8 (8 sliders), Akai LPD8 (8 knobs), Evolution UC-16 (16 knobs), Evolution X-Session (like the UC-16 but with a slider and 10 buttons as well), M-audio O2/KeyStudio 25/KeyRig 25 (8 knobs, 1 slider, 8 buttons plus velocity-sensitive keyboard), Behringer UMX25 and UMA25S (same as O2). Note that only a few of these include keyboards.

Also, there are the "mini controllers" - not as rugged and dependable (but perhaps a useful

second controller?): Korg nanoKontrol(2) (9 [or 8] sliders, 9 [or 8] knobs, 18 [or 35] buttons), Samson Graphite (8, 8, 0), Worlde EasyControl.9 (9, 9, 11), icon lcontrols (9, 9, 0), and Korg nanoKey (25-key velocity-sensitive "keyboard" only; but the *original* nanoKey *can* be used as a set of 26 buttons).

Finally, many other units will also work fine with the MS20ic software. If non-USB, they need a MIDI-to-USB adapter with external power supply. If USB, they require a powered HUB. (This is true for any device that draws more than 100mA current, which many larger and more elaborate MIDI devices do.)

WITH MS20ic (LEGACY) COLLECTION SOFTWARE (Mac/PC)

First, open the MS20ic software on your computer and prepare a zeroed-out initial settings program to start with a clean slate, specifically for all the knobs you are not using. Do this by using your mouse/trackpad to drag all controllers to their lowest or zero settings. (Suggestion: leave Master Tune at its midpoint, which is functionally zero.) Don't forget the Wheel. (It can help to view the tooltips, which display all controls' current value except the Wheel.) Then click File | Save Program, give a filename to this template and save it. The next time you open the software, you will just click File | Load Program, clicking on the template you previously saved.

Now, having decided which MS20ic knobs you need to control, and having programmed your device(s) to control them, connect your device via USB to your computer (with MS20ic software open and zeroed template visible). The software will not yet have "discovered" the MIDI controller. On the software GUI, click on System | Preferences | MIDI Settings. It will now Rescan to find your device(s). When it stops, you can now select your controller as MIDI IN Device 1. (If you have more than one, you can select them as well - as Device 2, even 3.)

Then set your controller(s) to initial settings; as you do, the software GUI will follow suit. When finished, manually set any unused GUI controls (via mouse/trackpad) to presets other than zero. Note also that the default keyboard note is the second C from the bottom of the GUI (middle C). If you lack a hardware keyboard, and need some other preset note, click it on the GUI keyboard. (Of course, sounding pitch/frequency will depend on the Scale settings of the two VCOs.)

Any device that includes a MIDI keyboard automatically transfers its note data to the software. (If the keyboard is also velocity sensitive, the software can make use of these velocity data, but only through special programming. To access this capability: click the software's Edit button and scroll the GUI to its far left. There you will see an External Modulation section with two Source columns that correspond to your selected controllers. In the column [probably Source 1] that represents your keyboard device, select Velocity from the pull-down menu in the green box. Then apply the amount of velocity you want to modulate any of the five parameters in that column. For normal peak amplitude of "notes", select the bottom control of Source 1. Note that the iMS20 app processes velocity-sensitive data differently; see further above.)

Lastly, if your setup require any patchcords, you will need to add these manually to the GUI by clicking on one jack, and dragging the "cord" to another (and releasing). Cords can be easily removed or redirected by clicking on a patched jack and moving the cord away. If you'd like to save this patch, so as not to have to manually reenter it every time, add it to your "init template." With this template open, and before connecting your computer, just add your patchcords manually and resave the template. (The next time you load the template, the patchcords will be there too.) At long last, you are ready to perform.

WITH iPad iMS20 APP

Prepare the app for use with other controllers the same way as for the Korg MS20ic controller (see above, under "With iPad iMS20 App"). The only difference is that you may or may not need a powered USB HUB. If either the device does not control the GUI, or you receive a message that "the connected device requires too much power" (i.e., more than 100mA), you need the powered HUB. If, on the other hand, your device has its own power supply and you are using a MIDI-to-USB adapter cable, you do *not* need a HUB. Some of the relatively inexpensive devices that do *not* require a HUB are listed under "General Programming of the Controller(s)" above. Note that the use of more than one device at a time *will* require the powered HUB.

Initial iPad Setup

Again, iPad preparation is similar to that for the MS20ic controller - but only to a point. As above, turn on your iPad, and click Settings, then General and Auto-Lock - making sure the latter is set (for now) to Never. (Otherwise, the app will shut off at whatever time is set here.) Do begin with your iPad well charged!

Open the iMS20 app; under Synth Edit, click Effect and if On, click Off (and relick Effect). Now prepare a zeroed-out initial settings template to start with a clean slate (most importantly for all the knobs you are not using). Click the Sound Preset Browse button, select the Init preset and Close. Finger-drag all the GUI controls to their lowest (usually zero) or left-most settings. (Zero for Master Tune is at 12:00.) Don't forget the Wheel. It can help to view the tooltips, which display all controls' current value except the Wheel. (Click the Global button, and set Tooltip to "On" if tooltips are not already visible.) Then click File | Save Program, give your new preset a filename (suggestion: Zero Init) and Save it. The next time you open the software, you will simply click Sound Preset Browse and select the template you previously saved.

If your setup requires patchcords, you will need to add these manually to the iPad GUI by touching one jack, and dragging the "cord" to another (and releasing). Cords can be easily removed or redirected by touching a patched jack and moving one end of the cord away from the jack. If you'd like to save your patch so as not to have to reenter it every time, add it to your "Zero Init" template. With your template open, "enter" your patchcords and resave the template. (The next time you load it, the patchcords will be there too.)

Now connect everything (including devices) to the iPad. Prepare the MIDI controller(s) with your desired initial settings; the iPad GUI will mirror your movements. Then manually set any GUI static values that may be non-zero. If you want, you can add these settings to your "init template" to save this step in the future. (You can save the revised template with or without your *controller's* initial settings; every time, however, you must manually reset your controller's values on your device(s) while attached to the iPad.) Finally, you are ready to perform.

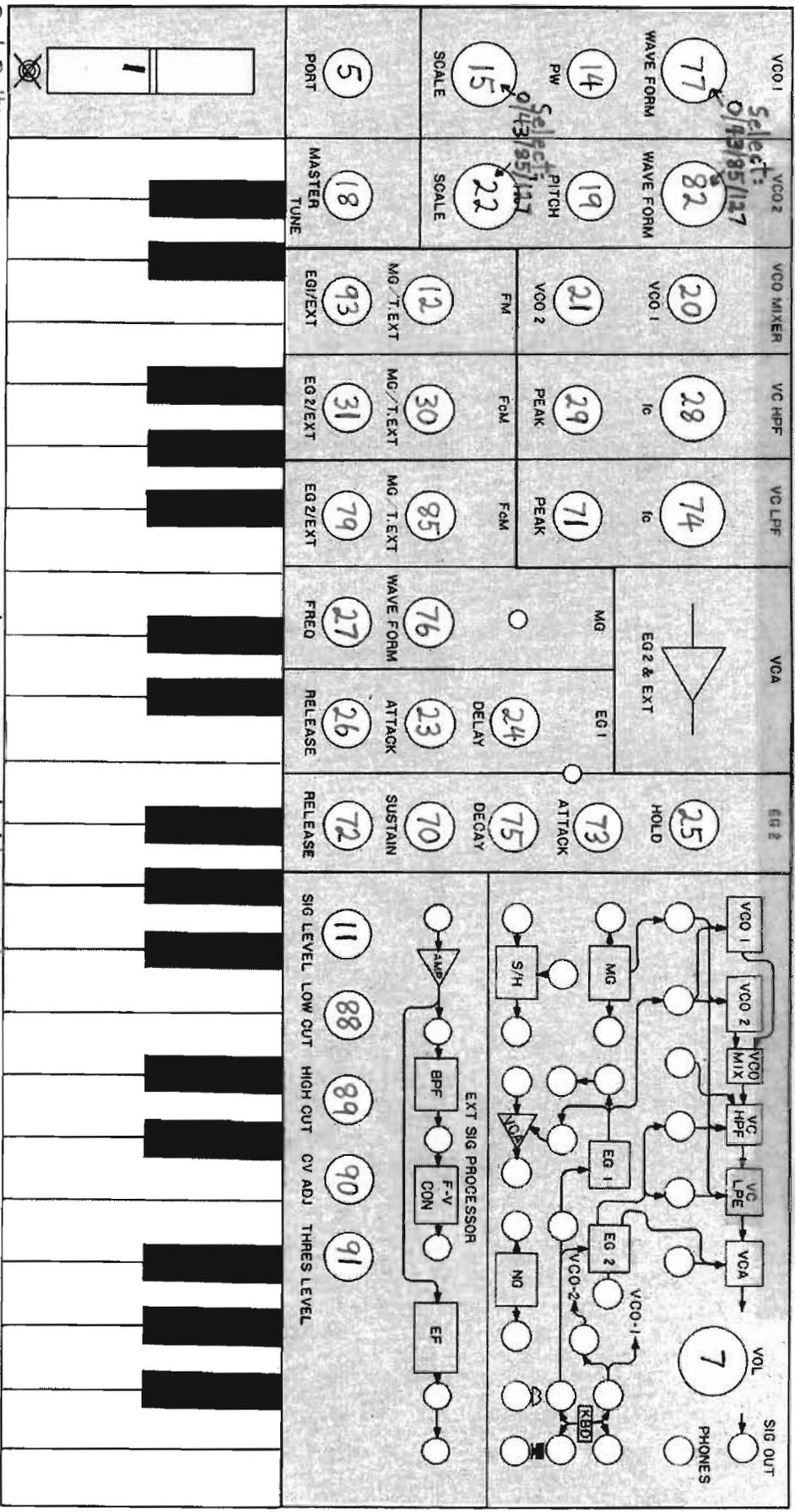
MIDI Controller & Note Input

for Korg iMS20 iPad & MS20ic (Legacy Collection) Software

All input on channel 1.

For VCO Wave Form & Scale controls:
Send "Select" values to switch output.

Either a single knob/slider, or set of four programmable buttons can accomplish this.



Push Button:
noop

MIDI Notes 48-84; velocity sensitive