



## **Configuring a PC and a Yamaha MIDI Instrument to Communicate via the MIDI/Joystick Port**

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A Yamaha MIDI instrument (keyboard, tone module, sequencer, etc.) can interface with a Windows based PC via a MIDI-compatible sound card with a 15-pin MIDI/Joystick port. However, in order for successful MIDI communication to occur, the MIDI cabling, drivers and application program must be properly installed and configured.

### **Table of Contents:**

- 1) Settings on the Yamaha MIDI Instrument.
- II) Connecting a Single Yamaha MIDI Instrument to a PC.
- III) Connecting Two Yamaha MIDI Instruments (Keyboard and Tone Module) to a PC.
- IV) Verifying the MIDI Sound Card Driver Installation in Windows.
- V) Setting the MIDI Output Driver in the Control Panel.
- VI) MIDI Application Setup.
- VII) Testing the MIDI Connection.
- VIII) Troubleshooting.

**IMPORTANT:** *It is highly recommended that these sections be considered in chronological order.*

**NOTE:** *The Yamaha MIDI/Joystick cable, part # TW6MC1, is recommended. Other compatible cables may also be used. The cable connects the MIDI/Joystick port on the computer sound card to the MIDI IN and MIDI OUT ports on the Yamaha MIDI instrument(s).*

The TW6MC1 can be purchased at a local Yamaha dealer or by calling 'Yamaha Parts and Accessories' at: (888) 892-6242 (Press '1' once the call is connected). Click on "Locate a Dealer", found at the top of this page, to find a local Yamaha dealer.

### **I) Settings on the Yamaha MIDI Instrument:**

The default settings of the most Yamaha MIDI instrument will usually work well in most MIDI configurations without having to make any changes. Check to make sure that these basic parameters are set:

1. MIDI Transmit Channel = 1
2. MIDI Receive Channels = 1 - 16
3. Local = ON (This setting applies to Yamaha MIDI keyboards only)

**NOTE:** *Some Yamaha MIDI instrument have a 'HOST SELECT' switch located on either the back, bottom or side panel. Make sure that this switch is set to the 'MIDI' position.*

### **II) Connecting a Single Yamaha MIDI Instrument to a PC:**

1. Insert the 15-pin plug of the cable into the 15-pin MIDI/Joystick port on the sound card.
2. Connect the MIDI plug labelled 'MIDI IN' to the MIDI OUT port of the Yamaha MIDI instrument.
3. Connect the MIDI plug labelled 'MIDI OUT' to the MIDI IN port of the Yamaha MIDI instrument.

### **III) Connecting Two Yamaha MIDI Instruments to a PC:**

1. Insert the 15-pin plug of the cable into the 15-pin MIDI/Joystick port on the sound card.
2. Connect the MIDI plug labelled 'MIDI IN' to the MIDI OUT port of the first Yamaha MIDI instrument (Example: PSR keyboard).
3. Connect the MIDI plug labelled 'MIDI OUT' to the MIDI IN port of the second Yamaha MIDI instrument (Example: MU tone module).

**NOTE:** *The above connection procedures apply to the Yamaha TW6MC1 MIDI/Joystick cable. Most cables but not all use the same setup procedure as described above. There may be other cables that have different connectivity requirements.*

### **IV) Verifying the MIDI Sound Card Driver Installation in Windows:**

1. Click the <Start> button from the Windows task bar.

2. Select 'Settings'.
3. Select 'Control Panel'.
4. Double-click on the 'System' icon. The 'System Properties' tab menu page will appear.
5. Click on the 'Device Manager' tab.
6. Click on the 'View devices by type' radio button.
7. Double-click on 'Sound, video and game controllers' located in the 'View devices by type' list box. A list of device drivers should appear.
8. Verify that the proper driver for the sound card is in the list.

**NOTE:** A MIDI driver will normally be identified as 'MPU-401' or the word 'MIDI' will be somewhere in the listed name as in the Soundblaster's 'SB MIDI' driver, for example. If neither 'MPU-401' nor 'MIDI' is listed, contact the sound card or computer manufacturer to verify the MIDI compatibility of the sound card.

## V) Setting a MIDI Output Driver in the Control Panel:

Selecting a MIDI output driver in the Control Panel enables MIDI communication from any Windows-based application, such as Media Player, to the Yamaha MIDI instrument. The following is a basic procedure.

1. Click the **<Start>** button from the Windows task bar.
2. Select 'Settings'.
3. Select 'Control Panel'.
4. Double-click on the 'Multimedia' icon. The 'Multimedia Properties' tab menu page will appear.
5. Click on the 'MIDI' tab.
6. Select a MIDI driver (Example: 'MPU-401' or 'SB MIDI') listed in the white 'MIDI output' list box. Once a driver is selected from the list box, it will appear in the thin grey box located beneath the words, 'Single Instrument'.

**NOTE:** The Yamaha CBX Driver may also be listed here if this driver has been installed on the PC. The Yamaha CBX driver is necessary only if the Yamaha MIDI instrument has a TO HOST port and this port is connected to a serial port on the PC via a TO HOST cable, Yamaha part # CCIBM. For more information on the 'TO HOST' feature and the Yamaha CBX Driver click.

7. Click on **<OK>** to enable the driver and return to 'Control Panel', or click **<Apply>** to enable the driver without leaving the 'Multimedia Properties' page.

## VI) MIDI Application Setup:

Selecting MIDI Input and Output drivers in the MIDI application enable MIDI communication between the application such as Cakewalk™ and the Yamaha MIDI instrument. The following is a basic procedure.

1. Open the MIDI application.
2. Find and open the MIDI setup window.

**NOTE:** Most MIDI applications such as Cakewalk™ have a MIDI setup menu where the MIDI driver can be selected. The MIDI setup menu item may be

*named 'Setup', 'MIDI Devices', 'MIDI Settings', 'MIDI Preferences', 'Project Options', etc. Consult the application owner's manual for specific setup information.*

3. Select the MIDI drivers (Example: 'MPU-401' or 'SB MIDI') to be used for MIDI IN *and* MIDI OUT. This will enable the MIDI application to send and receive MIDI data to and from the Yamaha MIDI instrument that is connected to the MIDI/Joystick port.
4. Set the MIDI 'Thru' or 'Echo' parameter according to the MIDI application owner's manual. As a general rule, MIDI Music Education applications require that the MIDI 'Thru' or 'Echo' parameter be set to OFF and, MIDI Sequencer and Notation applications require that the MIDI 'Thru' or 'Echo' parameter be set to ON or 'Automatic'.
5. Set the 'Local' setting in the Yamaha MIDI instrument. As a general rule, if the MIDI 'Thru' or 'Echo' parameter is set to ON or 'Automatic' in the MIDI application then the 'Local' setting should be OFF. If the MIDI 'Thru' or Echo is set to OFF or 'Manual' in the MIDI application then the Local setting should be ON. For more information on the Local Control setting, see.

**NOTE:** *Step 5 above is applicable to Yamaha MIDI keyboards and controllers with a 'Local' parameter only.*

## **VII) Testing the MIDI Connection:**

Since there are so many MIDI applications, they cannot all be covered here. However, the two most popular types of MIDI applications are either MIDI sequencer/notator or MIDI music education applications. The following is a basic procedure for testing the MIDI connection using either of these applications.

### **MIDI Sequencer/Notation Applications:**

1. MIDI Out Test
  - a. Open the MIDI application.
  - b. Load a MIDI file.
  - c. Play the MIDI file.
  - d. Verify that the music can be heard from the MIDI instrument.
2. MIDI In Test
  - a. Open the MIDI application.
  - b. Select the 'Track' or 'Staff'.
  - c. Arm the 'Track' or 'Staff' for Recording.
  - d. Click the 'Record' button and play the Yamaha MIDI instrument.
  - e. Verify that the MIDI data is recorded to the Track or Staff.

### **MIDI Music Education Applications:**

1. MIDI In/Out Test
  - a. Open the MIDI application.
  - b. Start a "Lesson". (Most applications will play a musical piece and then prompt the student to play the same piece. The music played by the application will be heard coming out of the Yamaha MIDI instrument

and the notes played by the student on the Yamaha MIDI instrument will register in the application.)

## **VIII) Troubleshooting:**

There are a number of things that may cause a communication problem between the computer and the connected Yamaha MIDI instrument(s). If problems are encountered, try the following procedures.

### **1. Reverse the MIDI IN and MIDI OUT plugs in the ports of the connected Yamaha MIDI instrument.**

- a. Test the MIDI connection.
- b. If reversing the MIDI cables did not solve the problem, change the cables back and go to Step 2.

### **2. Replace the Yamaha MIDI instrument with a known-good MIDI instrument.**

- a. Test the MIDI connection.
- b. If the replacement MIDI instrument works, the original instrument may have a problem. Check the original instrument's MIDI parameter settings. See 'Settings on the Yamaha MIDI Instrument'.
  - i. If the settings are OK contact a local Yamaha dealer or Service Center. The MIDI ports on the Yamaha MIDI instrument may have failed.
  - ii. Otherwise, change the MIDI parameter settings and test the MIDI connection again.
    - o If setting the MIDI parameters did not solve the problem, go to Step 3.
- c. If the replacement MIDI instrument does not work, replace the original MIDI instrument and go to Step 5. The problem might be in the MIDI driver resource settings in the computer.

### **3. Perform a factory reset or initialization.**

See the Yamaha MIDI instrument owner's manual for reset or initialization procedures.

- a. Test the MIDI connection.
- b. If a factory reset did not solve the problem, go to Step 4.

### **4. Try the MIDI Loopback Test.**

**This test is applicable to Yamaha MIDI keyboards and controllers with a 'Local' parameter only.**

Contact a local Yamaha dealer or Service Center to get the MIDI ports tested on the Yamaha MIDI instrument and/or go to Step 5.

The loopback test will check the 'MIDI IN' and 'MIDI OUT' ports for proper operation. A MIDI cable will be needed. MIDI cables are available through most Yamaha dealers. Click here to locate a local Yamaha dealer. Parts

Express also supplies MIDI cables. The Parts Express order line is (800) 338-0531.

- a. Set the MIDI 'Local' parameter of the Yamaha MIDI keyboard to 'OFF'. Consult the owner's manual for specific details on the how to set 'Local' setting. Also, for more information on the Local Control setting, see.

**NOTE:** *Not all Yamaha MIDI keyboards have a 'Local' setting. If the Yamaha MIDI keyboard does not have a 'Local' setting, then the loopback test cannot be performed. Contact a local Yamaha dealer or Service Center to get the MIDI ports on the Yamaha MIDI keyboard tested and/or go to Step 5.*

- b. Play some notes. If no sound is heard, this will confirm that the Local parameter has been properly set to OFF.
- c. Plug in the MIDI cable.
  - i. Insert one end of the cable in the MIDI OUT port of the Yamaha MIDI keyboard.
  - ii. Insert the other end of the cable in the MIDI IN port of the Yamaha MIDI keyboard.
- d. Play some notes. In this configuration the Yamaha MIDI keyboard is transmitting MIDI data to itself; if sound is heard, then the MIDI ports are operating properly.
- e. If the MIDI loopback test is successful, go to Step 5. The problem might be in the MIDI driver resource settings in the computer.
- f. If the MIDI loopback test was not successful, the MIDI port of the Yamaha MIDI keyboard may have failed. Contact a local Yamaha dealer or Service Center.

## 5. Check the Control Panel Settings

One of the most common computer-related problems is a technical issue involving interrupts. Interrupts 'call' or notify the computer processor when MIDI data is being sent to the MIDI/Joystick port. If an interrupt is not assigned to the proper driver, the computer processor will never 'know' that MIDI data is coming in. If a MIDI file or sequence can be played from the computer to the Yamaha MIDI instrument but MIDI data is not recorded to the MIDI sequencer application (or the MIDI music education application does not recognize MIDI input), the interrupt may not be set properly.

Many sound card manufacturers and computer manufacturers do not enable MIDI IN capabilities because many computer users do not need to use MIDI IN. Also, MIDI IN requires the use of a system resource (interrupt) and some manufacturers want to save resources. Contact the computer/sound card manufacturer or a qualified computer technician to check and resolve this problem.

**IMPORTANT:** *About contacting a Yamaha dealer or Service Center, follow these guidelines when deciding whether to contact a Yamaha dealer or Service Center.*