duet
by APOGEE

User's Guide

v1.3 - September 2007

Duet User's Guide

Table of Contents

Package Contents

The following items should be included in your Duet package:

- Duet
- 1 meter FireWire cable
- Duet's breakout cable
- Apogee Software CD
- Duet's User Guide

Duet

1 meter FireWire cable

Duet's breakout cable

Apogee Software CD

Duet User's Guide

Introducing Duet

FireWire Port
Using the included FireWire cable, connect your Mac here – Duet is powered from the FireWire connection.

I/O Breakout Cable
Using the included breakout cable, connect microphones, instruments, and line outputs here.

Input and Output Level
These LEDs display the level of the input or output selected with the encoder.

The Encoder Knob
Setting levels couldn't be easier. Press the encoder to select an input or output level to set, and turn the encoder to obtain the desired level.

Phantom Power
These LEDs indicate that 48 volt phantom power is engaged on the 🎤 connections.

Headphone Output
Connect your headphones here.
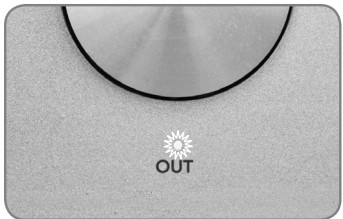
Quick Start Guide

System Requirements

Macintosh G4 1GHz or faster, G5 or Intel CPU, 1 GB RAM minimum, 2 GB recommended, OS X 10.4.11 or greater must be installed.

1 **Install Apogee Software Package**
Insert the included CD into your Mac, double click on the "Apogee Software Installer" icon, and follow the on-screen instructions. When the installation is complete you will be required to restart your Mac.
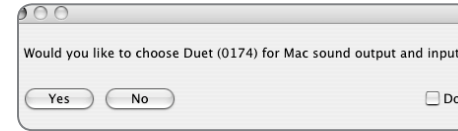

2 **Connect FireWire cable**
After restarting your Mac, connect Duet's FireWire port to a FireWire 400 port on your Mac using the provided cable.

As Duet is powered through the FireWire connection, the **OUT** LED should light immediately.

Quick Start Guide

Would you like to choose Duet (0174) for Mac sound output and input?

Yes   No   ☐ Do n

Sound Effects   Output

Choose a device for sound output

Name	Port
Duet (0260)	FireWire
Internal Speakers	Built-in O
Line Out	Built-in Li
Digital Out	Built-in D

Settings for the selected device:

3 **Choose Duet for Mac Sound I/O**
After connecting Duet to your Mac, Apogee's Maestro application will launch automatically and the dialog box shown at the left will appear. Click **Yes** to choose Duet for Mac sound output and input.
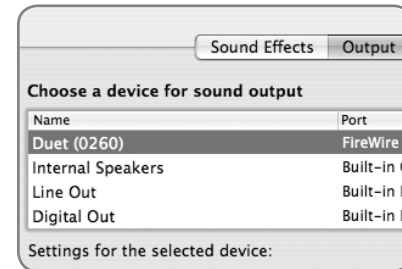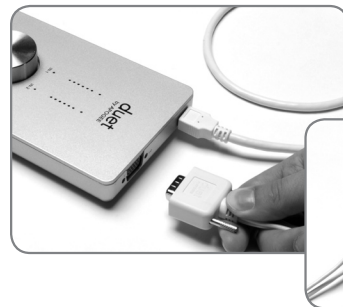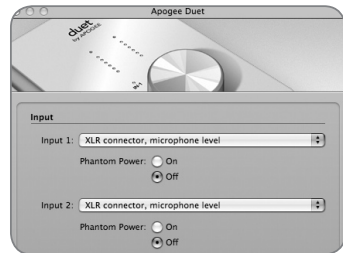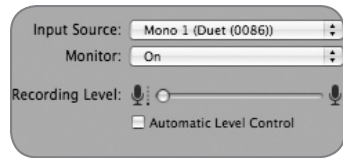
This selection may also be made in the **System Preferences > Sound > Output** pane.

4 **Connect Headphones**
Now, connect a pair of headphones to Duet's headphone output, open iTunes, and initiate playback of an audio selection. Playback should be audible in the connected headphones and displayed on Duet's top panel meters.

Quick Start Guide

(5) **Using Duet with GarageBand**
4.0.0 or greater recommended

In GarageBand, choose **GarageBand > Preferences**, click on the Audio/Midi icon and set **Audio Output** and **Audio Input** to **Duet**.
Click on the Advanced icon and set **Audio Resolution** to **Better** or **Best**.

Choose **Track > New Basic Track...**

Double click the new track's header to view the **Track Info** pane; in this pane, set **Input Source** to **Mono 1 (Duet)**; set **Monitor** to **On**.

To open GarageBand's **Apogee Duet** control panel, click on the Edit button next to the **Input Source** pop-up menu.
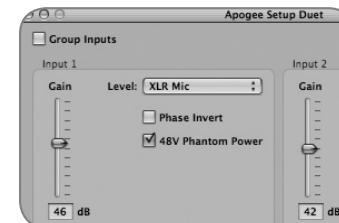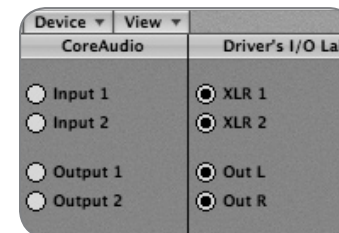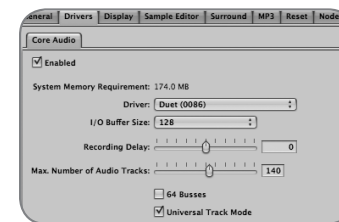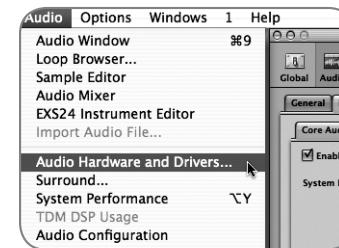
Connect the provided breakout cable to Duet's I/O connection, and connect a mic to the 🎤 IN-1 XLR connector.

Click the center of the top panel encoder until the **IN-1** LED lights, then turn the encoder to obtain a proper recording level on the record-enabled track.

You're now ready to record!

Quick Start Guide

(6) **Using Duet with Logic Pro**
7.2.3 or greater recommended

Open **Audio > Audio Hardware and Drivers > Drivers > CoreAudio** and check the **Enabled** box. Click "OK" when prompted by Logic.

Select **Duet** in the **Driver** field, set the **I/O Buffer Size** to **128** and click **Try (Re)–Launch** when prompted by Logic.

To "customize" the I/O routing labels in Logic to match Duet hardware I/O, open **Audio > Audio Configuration**; under the **View** menu, select **I/O Labels**; under the **Driver's I/O Label** column, Option–click the first radio button of each group of I/O labels.

To control Duet directly from your Logic session, open **Audio > Apogee Control Panel**.

If you're using another CoreAudio-compatible audio software app, use Apogee's Maestro software (installed in your Applications folder in Step 1) to control Duet.

Operation

The following array of hardware and software controls are used to modify Duet's settings.

Duet's **top panel encoder** provides simple and immediate control of input and output level settings.
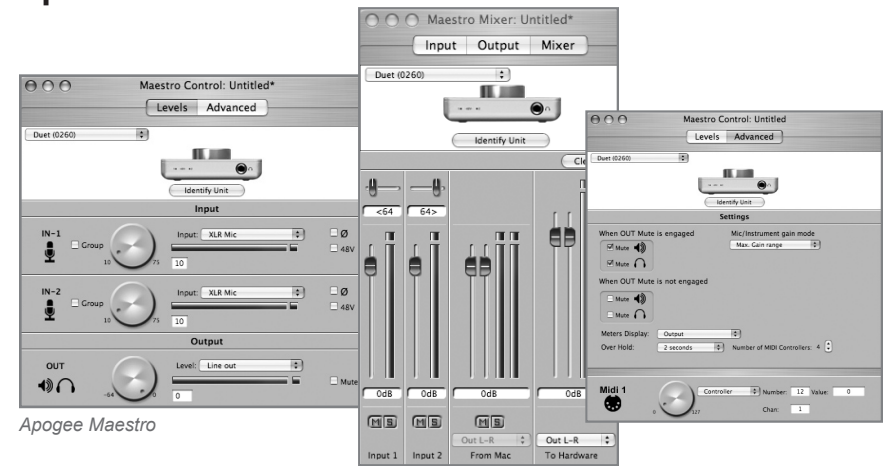
> To modify a setting, press the encoder until the setting's LED indicator lights, and turn the encoder to change the setting. The hardware encoder operates in parallel with any software level controls.
>
> To mute the line and headphone outputs simultaneously, press and hold down the encoder until the **OUT** LED blinks; press and hold again to unmute outputs. The encoder can also send MIDI Controller and Song Position data to software applications. Please see pages 16-17 for details.

Apogee Maestro

Apogee Maestro software provides the most complete control of Duet, including control of all settings, store/recall of configurations and low-latency mixing. Maestro may be used with all CoreAudio compatible applications. For a complete explanation of the Maestro Control panel, please see pages 10-17.
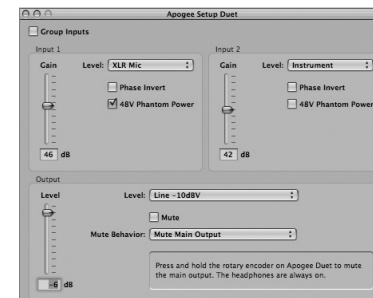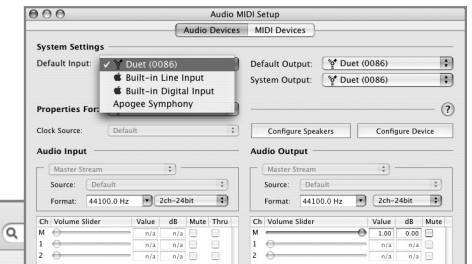
Apogee Control Panel

The Apogee Control Panel, found in Apple's Logic Pro and GarageBand software, provides control of Duet settings and store/recall of configurations.

OS X Audio MIDI Setup

OS X Audio MIDI Setup (found in the Applications/Utilities folder) provides control of Duet's sample rate and output level, as well as settings for assigning software I/O to Duet's hardware I/O. To control Duet's output level and muting from AMS or from the Mac keyboard, set **Default Output** to **Duet**.

> #### Setting Sample Rate
> Duet operates at all standard sample rates between 44k1 and 96k. The sample rate is, in most cases, determined by settings in the audio application with which Duet is communicating. For example, when using Duet with GarageBand, Duet's sample rate is automatically set to 44k1, to match the GarageBand song's sample rate. For those audio applications that don't include a sample rate setting, such as iTunes, Duet's sample rate may be set in Audio Midi Setup.

OS X System Preferences

OS X System Preferences Sound pane provides settings for assigning software I/O to Duet's hardware I/O.

Operation

Apogee Maestro

Apogee Control Panel

OS X Audio MIDI Setup
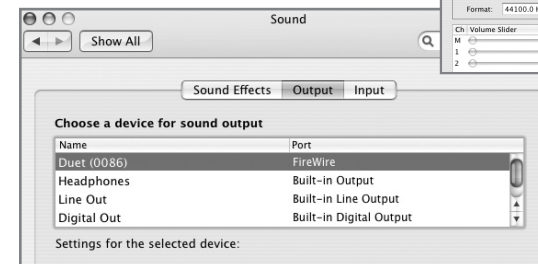
OS x System Preferences

Maestro

Maestro Control – Levels

1 **Interface Pop-Up Menu**
When Duet is properly detected by Maestro, **Duet** plus the unit's serial number appears in this pop-up menu.

2 **Identify Unit**
Clicking on this button verifies that communication is established between Maestro software and Duet hardware by lighting all top panel LEDs. Click the button again to return Duet's LEDs to their normal function.

3 **Input**
This pop-up menu is used to select the input connector and level:

**XLR Line +4dBu** – A balanced (pro) line level input is accepted from the 🎤 **IN-1** and **IN-2** (XLR) connectors; gain is fixed: maximum input level is 20 dBu.

XLR Line –10 dBV – A balanced (consumer) line level input is accepted from the 🎤 **IN-1** and **IN-2** connectors; gain is fixed: maximum input level is 8 dBu.

XLR Mic – A balanced input is accepted from the 🎤 **IN-1** and **IN-2** (XLR) connectors; gain is adjustable between 10 and 75 dB.

Instrument – An unbalanced input is accepted from the 🎸 **IN-1** and **IN-2** (1/4") connectors; gain is adjustable between 0 and 65 dB. These inputs are also suitable for -10 dBV line levels.

When **Input** is set to **XLR Mic** or **Instrument**, the following controls are accessible:

4 **Group** – Checking either of these boxes groups the gain setting of both inputs, so that the hardware encoder or one software encoder controls both input gains simultaneously. If a gain offset is present between inputs when **Group** is checked, this offset is preserved.

5 **Input Level Software Encoder** – The gain of each input may be controlled from these software encoders. The gain level is indicated in the value box to the right of the encoder.

6 **Phase icon** – Checking this box reverses the polarity of the input signal.
48V – Checking this box enables 48 volt phantom power on the XLR connections.

Maestro
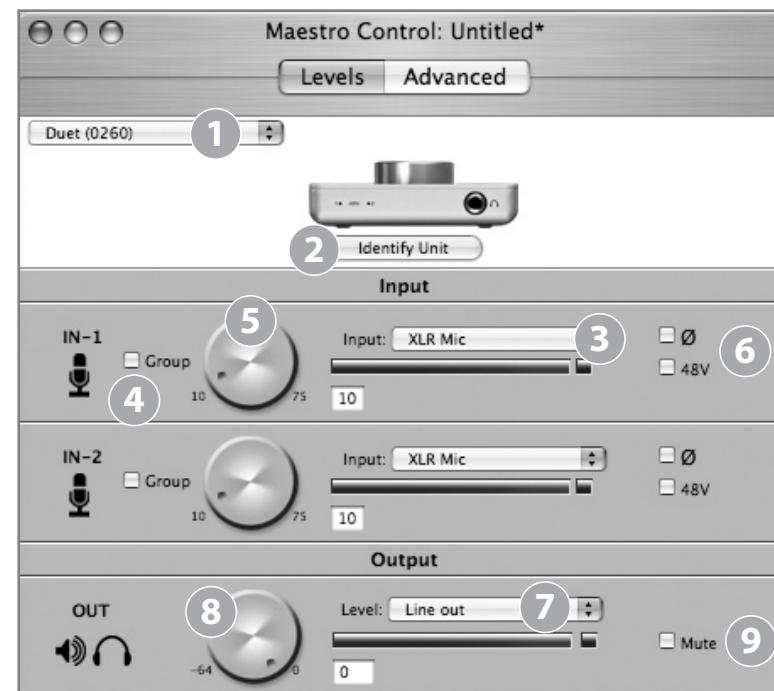
7 **Level**
The nominal level of the line outputs is set with this pop-up menu:

Line out – level is variable between 0 and -64 dB of attenuation, at a nominal output level of –10 dBV.

Instrument Amp – The output level is fixed at a nominal level of –20 dBV, suitable for connection to an instrument amplifier.

8 **Output Level Software Encoder**
The level of both line and headphone outputs is controlled simultaneously with this software encoder, when **Level** is set to **Line out**. The attenuation level is indicated in the value box to the right of the encoder.

9 **Mute**
Checking this box mutes the line and headphone outputs simultaneously.

Maestro

Maestro Control – Advanced

① **OUT Muting** – *See page 14 for details*

② **Mic/Instrument gain mode** – This pop-up menu sets the input gain mode:
> **Max. Gain range** – The full range of gain is available, with a relay switch occurring after the first 10 dB of gain.
> **Clickless Operation** – The gain range is reduced slightly but no relays are employed, resulting in clickless operation regardless of gain setting. An appropriate gain range is set based on the **Input** and **48V** settings

③ **Meters Display**
This pop-up menu selects the signal to be displayed on the top panel meters; selections are **Input**, **Output**, or **Follow Selection**. When **Follow Selection** is chosen, the meter display follows the top panel setting indicator; thus, when either **IN-1** or **IN-2** is selected, the meter displays both inputs, when **OUT** is selected, the meter displays the stereo output.

④ **Over Hold**
When **Over Hold** is set to **Infinite**, Over indications remain "on" until cleared by the user. Overs may be cleared by clicking on the Over indicator or clicking **Clear Overs** in the Maestro Mixer pane.

⑤ **Number of MIDI Controllers** – *See page 16 for details*

Maestro
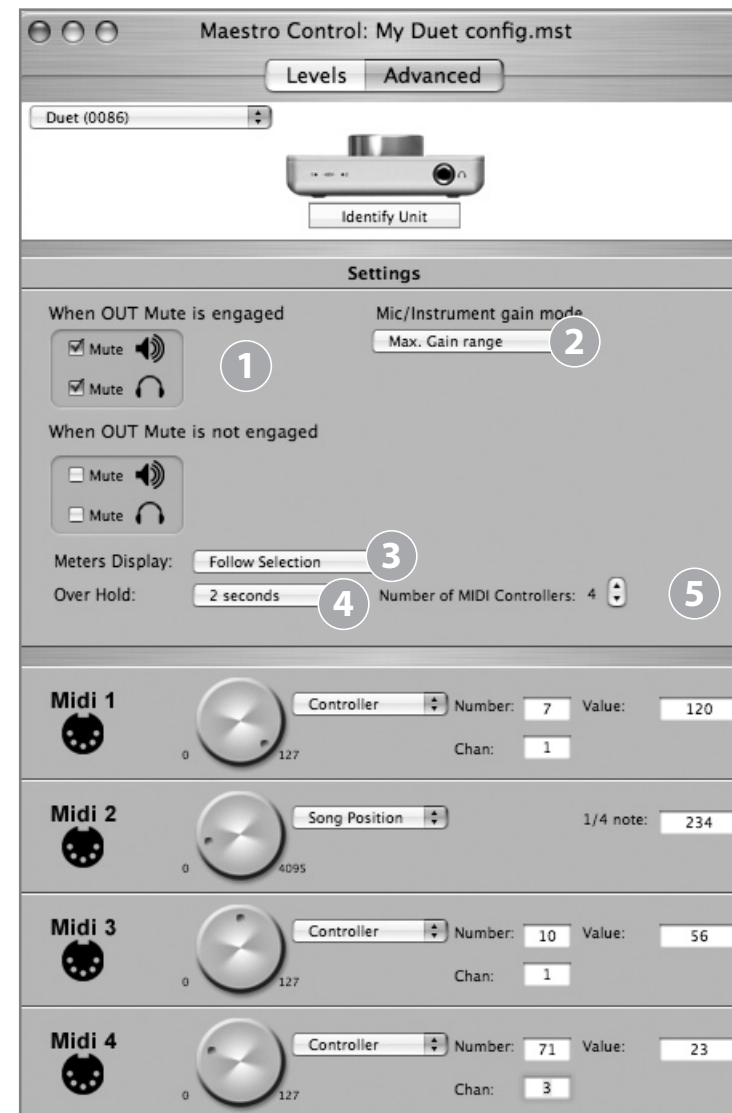
Maestro Control – Advanced: Out Muting

OUT Muting – These check boxes determine which outputs actually mute when the **Mute** function is engaged, allowing some clever customization to accommodate specific workflows. Here are a few examples:

When boxes are checked as shown at left, you can switch between a recording mode (headphones on, speakers connected to line outputs off) and a playback mode (headphones off, speakers on) with one action – engaging and disengaging **Mute**. The easiest way to toggle **Mute** is to press and hold the top panel encoder.

As the volume control for the two outputs is shared, it's a good idea to check your level before unmuting line outs.

When boxes are checked as shown at left, the headphone outputs are never muted; when **Mute** is engaged, only the line outputs are muted.

When boxes are checked as shown at left, the line outputs are never muted; when **Mute** is engaged, only the headphones are muted.

Maestro

Maestro Mixer

The Maestro Mixer provides the ability to blend Duet's hardware inputs with playback from an audio application, and route the resulting mix to Duet's hardware outputs. This provides to the recording performer a signal consisting of 1) playback from the audio application 2) the performer's input signal without the delay that would be incurred if routed through the audio application. For a more complete description of the mixer functionality, please consult the Maestro User's Guide found on the included CD or on Apogee's web site.
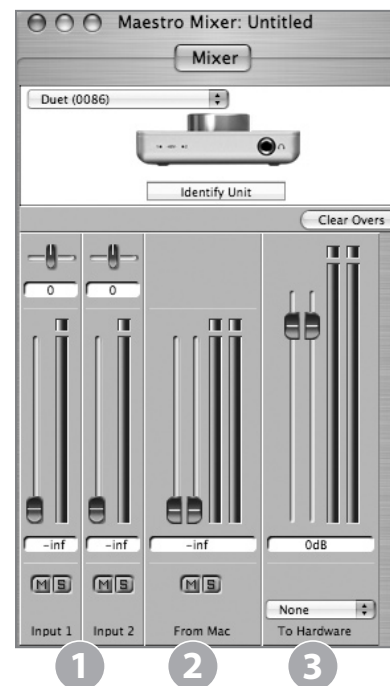
1 Input 1, **Input 2** – These channels provide mixing facilities to route and mix signal from each of Duet's hardware inputs directly to Duet's hardware outputs. The actual input source is determined by the Input setting (p. 10).

2 From Mac - This channel provides mixing facilities to mix the output of an audio application to Duet's hardware outputs.

3 To Hardware – This channel provides mixer output level and routing.

When **To Hardware** is set to **Out L-R**, the mixer's output is sent to Duet's hardware outputs.

When **To Hardware** is set to **None**, the mixer is disabled and the audio application's output is sent directly to Duet's hardware outputs.

Maestro

Maestro Control – Advanced: MIDI Controllers

(1) **Number of MIDI Controllers** – To access Duet's MIDI functionality, instantiate 1 to 4 virtual MIDI controllers using this counter. Once 1 or more MIDI controllers are instantiated, they may be modified with either the top panel encoder or the corresponding software encoder. To select a MIDI controller using the top panel encoder, press the encoder until the Duet pop-up displays selection of the desired MIDI controller (see p. 16 for more about Duet pop-ups). Note that when MIDI controllers are selected, neither the **IN-1**, **IN-2**, nor **OUT** LEDs are lit.

When **Number of MIDI Controllers** is set to **1** to **4**, the following settings are accessible:

(2) **MIDI encoder** – This software encoder is used to send MIDI Controller or Song Position data to software applications

When the function pop-up menu is set to **Controller**, the following settings are accessible:

(3) **Number** – This box displays the MIDI Continuous Controller number. The full range of 7-bit controls (0 to 127) may be entered.

(4) **Chan**: – This box displays the MIDI channel over which controller data is sent. Numbers between 1-16 may be entered.

(5) **Value** – Numbers in the range 0-127 may be directly entered (followed by **Enter** or **Return** keys to accept the value), though rotation of the encoder will override numerical entry.

When the function pop-up menu is set to **Song Position**, the following setting is accessible:

(6) **1/4 Note** – This box displays the current Song Position location, as defined as the number of 1/4 note beats from the beginning of the song, beat 0
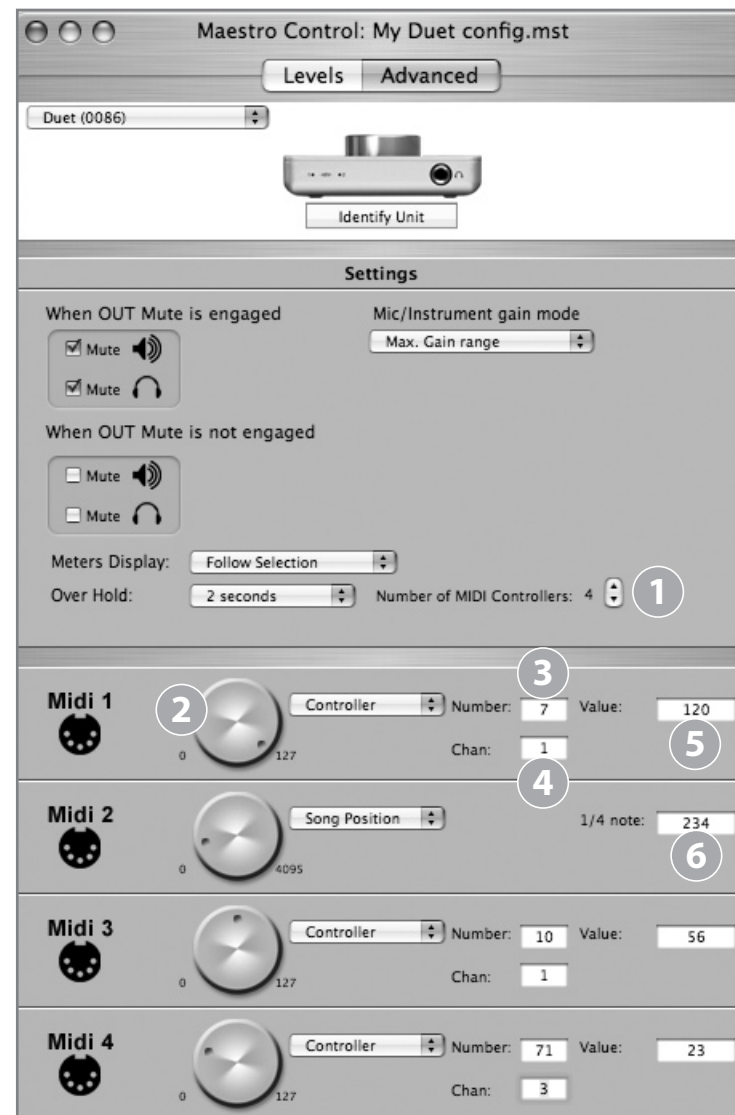
Maestro

Maestro Preferences – Duet Preferences

The two Maestro preferences specific to Duet are described below. For a description of other preference settings, please consult the Maestro User's Guide.

Launch Maestro automatically when connecting Duet
When this box is checked, Maestro is launched automatically when Duet is discovered on the Mac's FireWire bus. In order for Maestro mixer settings to be recalled after the computer restarts, this box must be checked. If this preference is unchecked, Maestro Mixer settings won't be preserved after the Mac has been shut down or restarted.

Enable Duet pop-ups
When this box is checked, Encoder pop-ups appear on the Mac which display various Duet settings, including input and output levels, **Input**, **Group** and muting. To illustrate, a few examples are shown below:

IN-1 selected,
Input set to 🎤 **XLR Mic**,
encoder set to 40 dB

IN-1 and **IN-2** selected,
Group checked,
Input 1 set to **XLR Mic**,
Input 2 set to **Instrument**,
encoder 1 set to 30 dB,
encoder 2 set to 40 dB.

OUT Level set to –12 dB
Mute engaged
OUT muting set as below

Mute engaged,
OUT muting set as below
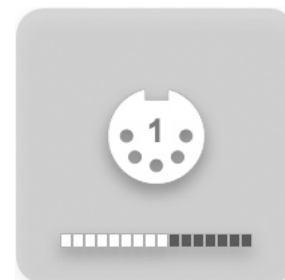
Encoder set to modify MIDI Controller 1

Connecting Your Duet:

Instrument and Monitors and Headphones

Connect monitors to the 1/4" outputs with the 🔊 icons labeled **OUT-L** and **OUT-R** on the breakout cable.

Connect headphones to the 1/4" output with the 🎧 icon.

Connecting Your Duet:

Instrument and Mic

Connect an instrument to the 1/4" input with the 🎸 icon labeled **IN-1** on the breakout cable.

Connect a microphone to the XLR input with the 🎤 icon labeled **IN-2** on the breakout cable.**.**
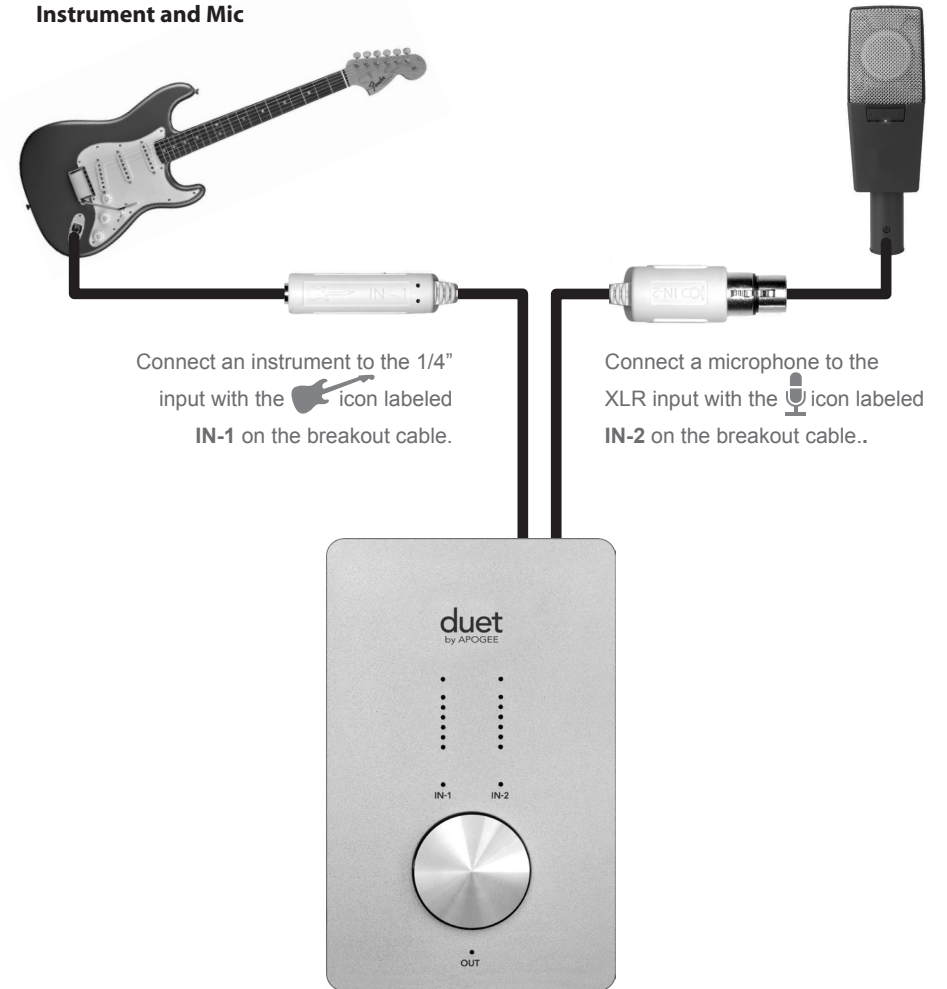
Connecting Your Duet:

Instrument and Instrument
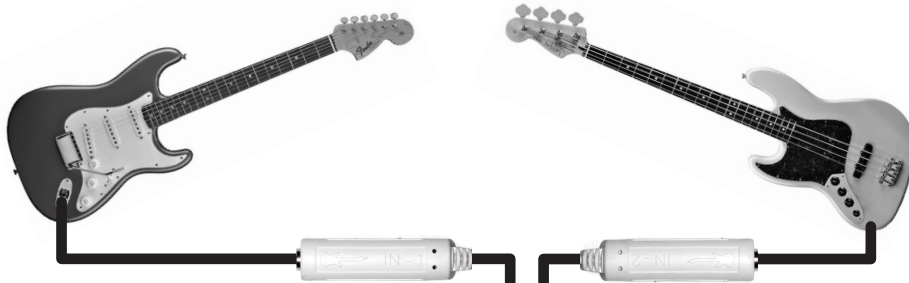
Connect an instrument to the 1/4" input with the 🎸 icon labeled **IN-1** on the breakout cable.

Connect an instrument to the 1/4" input with the 🎸 icon labeled **IN-2** on the breakout cable.
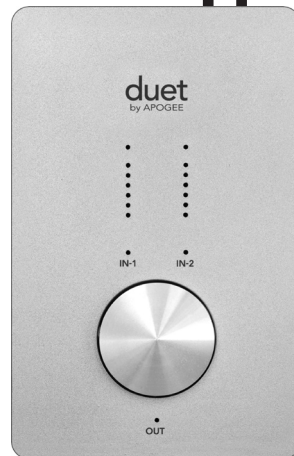
Connecting Your Duet:

Mic and Mic
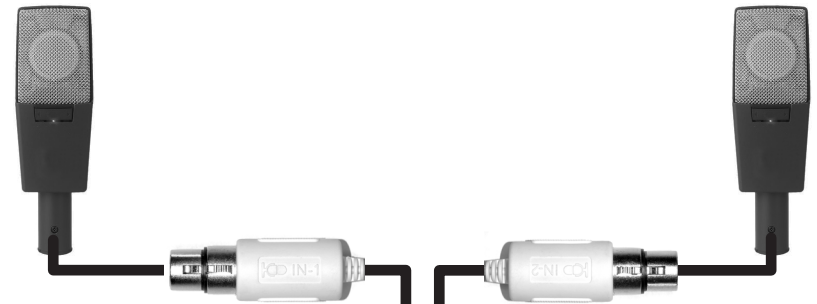
Connect a microphone to the XLR input with the 🎤 icon labeled **IN-1** on the breakout cable.

Connect a microphone to the XLR input with the 🎤 icon labeled **IN-2** on the breakout cable.

Troubleshooting

Q: When I press the encoder to select an input or output, the selection is unavailable. Why?

    A: When the inputs are set to **XLR line** or the output is set to **Instrument Amp**, the encoder disabled, and thus not selectable

Q: When I press the encoder to select an input or output, **ALL** the LEDs go out. Why?

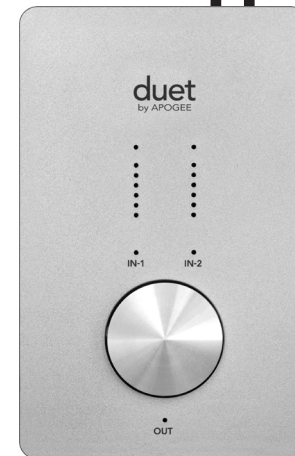   *A:* When 1 or more MIDI controllers are instantiated and selected for control by the top panel encoder, all the top panel I/O LEDs are turned off to indicate selection of a MIDI controller. If pop-ups are enabled in Maestro preferences, the MIDI controller selected will be displayed on screen.

Q: I've connected my guitar, but I'm not getting any input. What should I check?

    A: In Maestro, be sure to set **Input** to **Instrument**.

Q: I'm not getting any output from audio software applications. What should I check?

    A: If the **OUT** LED is flashing, the output is muted. Press and hold down the top panel encoder until the **OUT** LED stops flashing. Also, if the Maestro Mixer's output has been set to **Out L-R**, then the From Mac fader must be raised to send audio software application outputs to Duet's outputs.

Q: I don't want Maestro to open automatically each time I connect Duet. What should I set?

    A: Open **Maestro > Preferences** and un-check the **Launch Maestro automatically when connecting Duet** checkbox.

Q: Can I set the headphone and line outputs to different levels?

    A: The headphone and line outputs are always controlled simultaneously. To set the balance between headphones and speakers connected to the line outputs, set the speaker's amplifier accordingly. It is possible to mute the headphones and line outputs independently.

Q: How do I reset Duet?

    A: To reset Duet press and hold the encoder for 5 seconds. All settings will return to their default state.

Features & Specifications

- Two channels of professional-quality 24-bit/96kHz audio input and output
- Two balanced XLR inputs, with selectable 48V phantom power on each input
- Two unbalanced high impedance instrument inputs
- One high-level stereo headphone output
- Two unbalanced -10 dBV line outputs for powered speakers
- Multi-function controller knob for volume and input gain control and assignable MIDI control
- Multi-segment LED meters to display input or output levels
- FireWire 400, compatible with Mac OS X Core Audio
- Integration and control with Apple's GarageBand, Logic Pro, Logic Express and Final Cut Studio (Soundtrack Pro)
- Compatible with any Core Audio-compliant audio application
- Apogee's Maestro software for advanced control and low latency mixing

System Requirements

Computer: Mac G4 1GHz or faster, G5 or Intel CPU
Memory: 1 GB RAM minimum, 2 GB recommended
OS: 10.4.10 or greater
Connection: FireWire 400 port

Notifications

Owner's Record

The serial number is located on the rear panel of the unit. We suggest you record the serial number in the space provided below. Refer to it whenever you call an authorized Apogee Electronics repair facility or the manufacturer. Please be sure to return your completed warranty card immediately!

Duet Serial No._____

Purchase Date_____

Dealer_____

Phone_____

Address_____

CAUTION:
Any changes or modifications not expressly approved by APOGEE ELECTRONICS CORPORATION could void your authority to operate this equipment under the FCC rules.

Please register this unit by filling in the included registration card, or registering online at:

http://www.apogeedigital.com/register/

Warnings

FCC warning
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to take whatever measures necessary to correct the interference at his own expense.

Copyright Notice

The Apogee Duet is a computer-based device, and as such contains and uses software in ROMs. This software, and all related documentation, including this User's Guide contain proprietary information which is protected by copyright laws. All rights are reserved. No part of the software and its related documentation may be copied, transferred, or modified. You may not modify, adapt, translate, lease, distribute, resell for profit or create derivative works based on the software and its related documentation or any part thereof without prior written consent from Apogee Electronics Corporation, U.S.A.

Registration and Warranty Information

Be sure to register your Duet, either by filling in the enclosed Registration Card or by completing the on-line registration form at our Web site: http://www.apogeedigital.com/support/. If you do so, Apogee can contact you with any update information. As enhancements and upgrades are developed, you will be contacted at the registration address. Firmware updates are free for the first year of ownership unless otherwise stated. Please address any inquiries to your dealer or directly to Apogee at:

APOGEE ELECTRONICS CORPORATION,
1715 Berkeley St., Santa Monica, CA 90404, USA
Tel: (310) 584-9394
Fax: (310) 584-9385
Email: support@apogeedigital.com
Web: http://www.apogeedigital.com

APOGEE ELECTRONICS CORPORATION warrants this product to be free of defects in material and manufacture under normal use for a period of 12 months. The term of this warranty begins on the date of sale to the purchaser. Units returned for warranty repair to Apogee or an authorized Apogee warranty repair facility will be repaired or replaced at the manufacturer's option, free of charge.
ALL UNITS RETURNED TO APOGEE OR AN AUTHORIZED APOGEE REPAIR FACILITY MUST BE PREPAID, INSURED AND PROPERLY PACKAGED, PREFERABLY IN THEIR ORIGINAL BOX. Apogee reserves the right to change or improve design at any time without prior notification. Design changes are not implemented retroactively, and the incorporation of design changes into future units does not imply the availability of an upgrade to existing units.

This warranty is void if Apogee determines, in its sole business judgment, the defect to be the result of abuse, neglect, alteration or attempted repair by unauthorized personnel.

The warranties set forth above are in lieu of all other warranties, expressed or implied, and Apogee specifically disclaims any and all implied warranty of merchantability or of fitness for a particular purpose. The buyer acknowledges and agrees that in no event shall the company be held liable for any special, indirect, incidental or consequential damages, or for injury, loss or damage sustained by any person or property, that may result from this product failing to operate correctly at any time.

USA: Some states do not allow for the exclusion or limitation of implied warranties or liability for incidental or consequential damage, so the above exclusion may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

Service Information

The Duet contains no user-serviceable components: refer to qualified service personnel for repair or upgrade. Your warranty will be voided if you tamper with the internal components. If you have any questions with regard to the above, please contact Apogee.

In the event your Duet needs to be upgraded or repaired, it is necessary to contact Apogee prior to shipping, and a Return Materials Authorization (RMA) number will be assigned. This number will serve as a reference for you and helps facilitate and expedite the return process. Apogee requires that shipments be pre-paid and insured — unless otherwise authorized in advance.

IMPORTANT: ANY SHIPMENT THAT IS NOT PRE-PAID OR IS SENT WITHOUT AN RMA NUMBER WILL NOT BE ACCEPTED.

Declarations of Conformity

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
1. This device may not cause harmful interference
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits of a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. If this equipment does cause harmful 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:

1. Re-orient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a different circuit from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

NOTE: The use of non-shielded cable with this equipment is prohibited.
CAUTION: Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

Apogee Electronics Corporation, Betty Bennett, CEO.

Industry Canada Notice

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Declaration of Conformity – CE

Apogee Electronics Corporation hereby declares that the product, the Duet, to which this declaration relates, is in material conformity with the following standards or other normative documents:

EN55022:1998, EN55024:1998

EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11

Declaration of Conformity – Japan

Apogee Electronics Corporation hereby declares that the Duet, to which this declaration relates, is in material conformity with the VCCI Class B standard.

Declaration of Conformity – Australia

Apogee Electronics Corporation hereby declares that the Duet is in material conformity with AN/NZS standard requirements.

Duet
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SOUND AMAZING

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