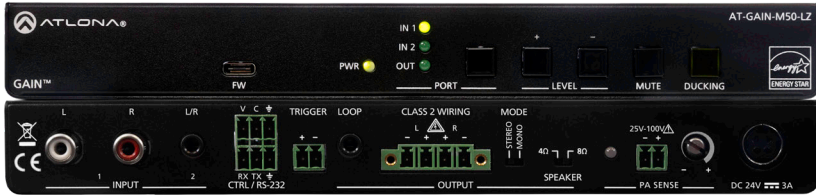


50 Watt Mixer Amplifier

AT-GAIN-M50-LZ



The Atlona **AT-GAIN-M50-LZ** is a two-input mixer amplifier designed for low impedance education and commercial applications. The amplifier delivers either two channels of 25 watts each into 4 or 8 ohms, or a single channel of 50 watts. The GAIN-M50-LZ features two unbalanced stereo audio inputs on RCA and 3.5 mm connections with independent level control for each. An unbalanced 3.5 mm output allows the mixed signal to be passed to an assistive listening system or separate amplifier.

The GAIN-M50-LZ includes unique capabilities intended for education applications. Ducking automatically lowers the program audio level on input 1 when a teacher speaks into a microphone system connected to the unbalanced input 2. PA sense mutes the output of the amplifier whenever it detects activity on the school public address system. Both features ensure important lesson material and announcements are heard clearly.

The compact, plenum rated enclosure allows the amplifier to be mounted in a variety of locations such as under a desk or table, on the wall behind a display, or in the ceiling.

The amplifier includes an RS-232 port for automated operation from Velocity™ or third-party control systems. It also supports remote volume control from the optional AT-GAIN-VOL wallplate.

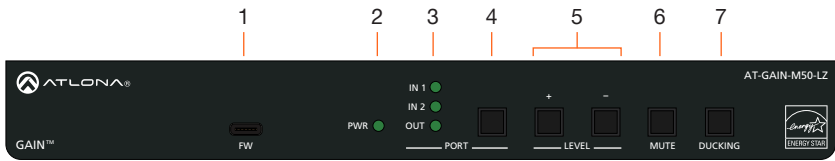
Package Contents

- | | |
|------------------------------------|-----------------------------|
| 1 x AT-GAIN-M50-LZ | 4 x Rubber feet |
| 2 x 2-pin captive screw connectors | 2 x Mounting brackets |
| 2 x 3-pin captive screw connectors | 1 x 24 V / 3 A power supply |
| 1 x 4-pin captive screw connector | 1 x AC power cord |
| 4 x Machine screws | 1 x Insert w/ QR code |



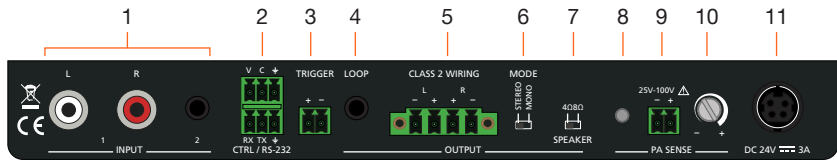
IMPORTANT: Visit <https://www.atlona.com/product/at-gain-m50-lz> for the latest firmware updates and User Manual.

Front Panel Descriptions



- | | |
|---|--|
| <p>1 FW
Connect a USB-C cable to this port to perform firmware updates. Refer to Updating the Firmware (page 16) for more information.</p> <p>2 PWR
LED will be green when the AT-GAIN-M50-LZ is powered.</p> <p>3 IN 1, IN 2, OUT
LED will be green when set to the selected input or output.</p> <p>4 PORT button
Press this button to select the desired port. Once the port is selected, the port volume can be adjusted.</p> | <p>5 LEVEL
Press these buttons to increase (+) or decrease (-) the audio output volume.</p> <p>6 MUTE
Press this button to mute the audio output.</p> <p>7 DUCKING
Press this button to activate the audio ducking feature.</p> |
|---|--|

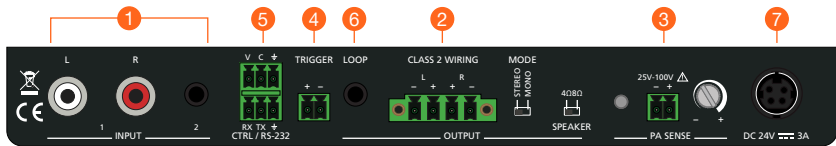
Rear Panel Descriptions



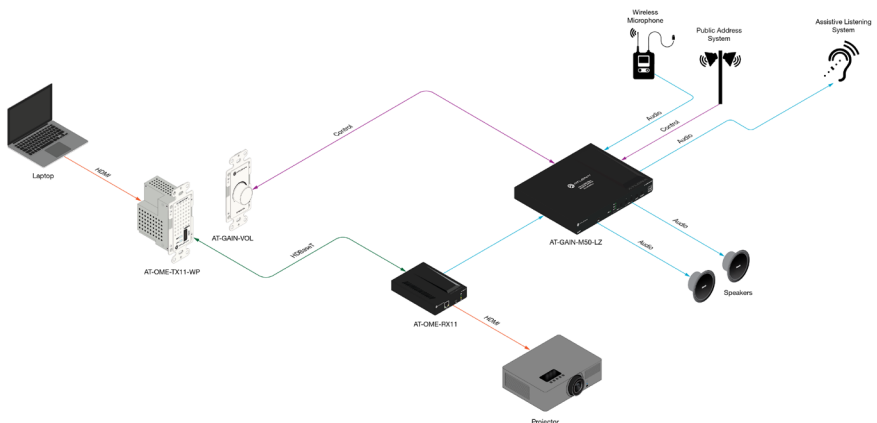
- 1 INPUT**
 Connect stereo RCA cables to **INPUT 1** and/or connect a 3.5 mm stereo cable to **INPUT 2**.
- 2 CTRL / RS-232**
 Connect the included 3-pin captive screw connectors to these ports. The top port is used for volume control, and the bottom port is used to connect to a control system. Both ports can be used simultaneously.
- 3 TRIGGER**
 Connect one of the included 2-pin captive screw connector to this port. Supports audio mute with contact closure or PA sense so announcements can be heard clearly.
- 4 LOOP**
 Connect a 3.5 mm stereo cable from this port to an assistive Listening System. This port can also be used to daisy-chain another amplifier to the AT-GAIN-M50-LZ.
- 5 OUTPUT**
 Connect the included 4-pin captive screw connector from this port to a pair of program / stereo speakers. Supports 2 x 25 watts @ 4/8 ohms amplifier (stereo or dual mono) or 1 x 50 watts @ 4/8 ohms (bridged).
- 6 MODE**
 Set this toggle switch to either **STEREO** or **MONO**, based on the speaker configuration of the **OUTPUT** port, above.
- 7 SPEAKER**
 Set this toggle switch to the correct speaker impedance.
- 8 PA SENSE LED**
 This LED will be green when PA Sense is active.
- 9 25V-100V (PA SENSE)**
 Connect one of the included 2-pin captive screw connector from this port to a PA speaker system.
- 10 Potentiometer (PA SENSE)**
 Adjusts the trigger voltage sensitivity.
- 11 DC 24V / 3A**
 Connect the included 24 V / 3 A power supply from this port to an available AC electrical outlet.

Installation

1. Connect stereo RCA cables to **INPUT 1** and/or connect a 3.5 mm stereo cable to **INPUT 2**.
2. Connect the included 4-pin captive screw connector from the **OUTPUT** port to a pair of program / stereo speakers. This port supports 2 x 25 watts @ 4/8 ohms (stereo or dual mono) or 1 x 50 watts @ 4/8 ohms (bridged). Refer to **Amplifier Modes (page 7)** for more information.
3. Connect one of the included 2-pin captive screw connector from the **PA SENSE** port to a PA speaker system. Refer to **PA Sense (page 8)** for more information.
4. Connect one of the included 2-pin captive screw connector from the **TRIGGER** port to a paging sensor.
5. Connect the included 3-pin captive screw connectors to these ports. The top port is used for volume control, and the bottom port is used to connect to a control system. Both ports can be used simultaneously.
6. Connect a 3.5 mm stereo cable from this port to an assistive Listening System. This port can also be used to daisy-chain another amplifier to the AT-GAIN-M50-LZ.
7. Connect the included power supply to the **DC 24V / 3A** receptacle. Connect the AC power cord to an available wall outlet.







Wiring Diagram



Front Panel LED Indicators

The LED indicators on both the front and rear of the unit provide basic information on the current status of the unit.

PWR		Description
Solid green		Unit is powered.
Off		Unit is not powered.

IN 1, IN 2, OUT		Description
Solid green		Identifies the currently selected port.
Off		The port is not selected.



NOTE: When all LED indicators are flashing, this means that the unit is being reset to factory defaults. Refer to [Performing a Factory Reset \(page 13\)](#) for more information.

Standby Modes

The AT-GAIN-M50-LZ provides two standby modes: Eco and Net. By default, the unit is shipped with Eco enabled, which complies with ENERGY STAR® and ErP regulations. To change the standby mode to Network Standby, execute the `StbyMode` command over RS-232. Refer to the AT-GAIN-M50-LZ API for a full list of commands.

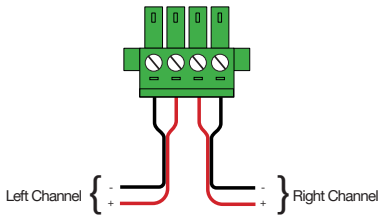
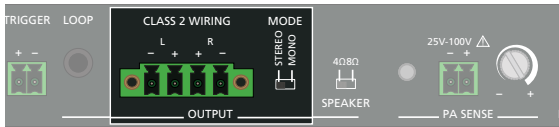
Command	Description
<code>StbyMode X</code>	<p>Sets the standby mode to be used, where $X = \{Eco, Net, sta\}$.</p> <ul style="list-style-type: none"> Eco (DEFAULT) - This low-power mode consumes 0.5 watts, which complies with ERP regulations. The unit will automatically go into this standby mode after the <code>APwrOffTime</code> timer has elapsed. To turn the unit back on, press any button on the front panel or send the <code>PWON</code> command using RS-232. Net - This low-power mode consumes approximately 2.2 watts. The unit will automatically go into this standby mode after the <code>APwrOffTime</code> timer has elapsed. To turn the unit back on, play audio through the system, press any button on the front panel, or send the <code>PWON</code> command using RS-232.
<code>STNDBY</code>	<p>Places the unit into low power mode. This low-power mode consumes 0.5 watts, which complies with ERP regulations. To turn the unit back on, press any button on the front panel or send the <code>PWON</code> command using RS-232.</p>
<code>PWOFF</code>	<p>Executing this command will turn off the AT-GAIN-M50-LZ according to the standby mode set by the <code>StbyMode</code> command. Use the <code>PWON</code> command to turn on the AT-GAIN-M50-LZ.</p> <ul style="list-style-type: none"> If <code>StbyMode</code> is set to <code>Eco</code>, sending the <code>PWOFF</code> command will place the unit in Eco standby mode. If <code>StbyMode</code> is set to <code>Net</code>, sending the <code>PWOFF</code> command will place the unit in Net standby mode.
<code>PWON</code>	<p>Executing this command will turn on the AT-GAIN-M50-LZ according to the standby mode set by the <code>StbyMode</code> command. Use the <code>PWOFF</code> command to turn off the AT-GAIN-M50-LZ.</p> <ul style="list-style-type: none"> If <code>StbyMode</code> is set to <code>Eco</code>, sending the <code>PWON</code> command will turn on the AT-GAIN-M50-LZ from the Eco standby mode. If <code>StbyMode</code> is set to <code>Net</code>, sending the <code>PWON</code> command will turn on the AT-GAIN-M50-LZ from the Net standby mode.
<code>PWCTRL on</code>	DEFAULT - Enables automatic standby functionality.
<code>PWCTRL off</code>	Disables automatic standby functionality.
<code>APwrOffTime</code>	DEFAULT (15 minutes) - Sets the duration of inactivity required before the device enters either Eco or Net standby mode.

Amplifier Modes

Stereo Mode

In stereo mode, the output delivers 25 watts per left and right channel. Stereo sources will pass through to the amplifier, unchanged.

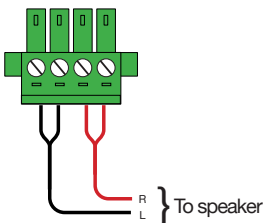
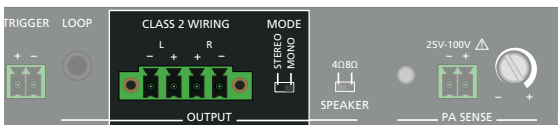
1. Locate the included 4-pin captive screw connector, for the **OUTPUT** port.
2. Connect the wires from the amplifier to the port as shown below.
3. Set the **MODE** switch to **STEREO**.



Bridged Mono Mode

In bridged mono mode, the output delivers 50 watts on a single channel. Stereo sources will be summed to mono at the amplifier.

1. Locate the included 4-pin captive screw connector, for the **OUTPUT** port.
2. Connect the wires from the amplifier to the port as shown below.
3. Set the **MODE** switch to **MONO**.



WARNING: Risk of electrical shock. Do not touch the speaker output.

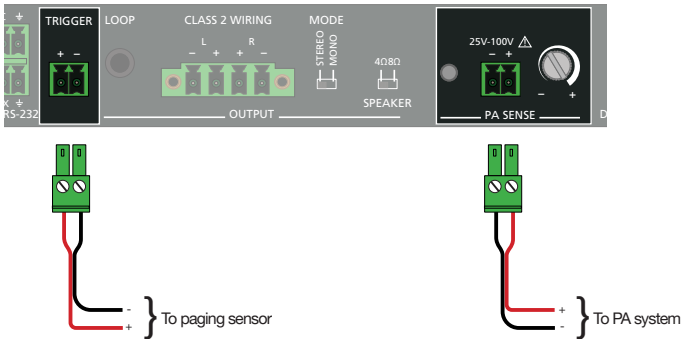
PA Sense

This section covers PA sense, which mutes the current audio program for the duration of a PA broadcast. The default setting of this port is Normally Open (NO). This can be changed to Normally Closed (NC) using the API.

1. Connect the **PA SENSE** port to the PA system and/or connect the **TRIGGER** port to the paging sensor.
2. The **PA SENSE** LED indicator will light up when PA Sense is active.
3. Adjust the **PA SENSE** potentiometer until the LED remains continuously on. Then, rotate the potentiometer until the LED turns off.
4. Test the PA system to verify PA Sense activation, and readjust the potentiometer if necessary.



IMPORTANT: The AT-GAIN-M50-LZ supports 25 V to 100 V systems. The wiring of the **PA SENSE** port must match the voltage rating of the system's amplifier.



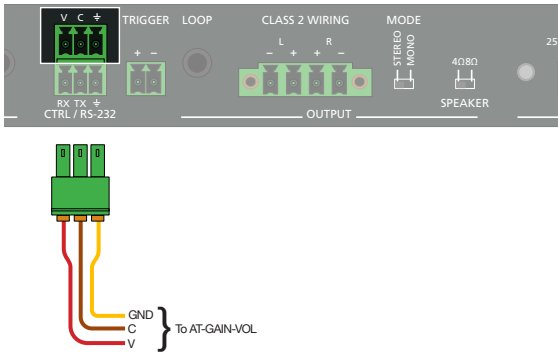
WARNING: Risk of electrical shock. Do not touch the speaker output.

Control

The **CTRL / RS-232** port provides both volume control and external control. The top port is used to connect to the AT-GAIN-VOL (not included), and the bottom port is used to connect to a control system. Both ports can be used simultaneously.

Volume Control

1. Connect one of the 3-pin captive screw connectors to the top port, using the wiring as shown below.
2. Connect the opposite end to the 3-pin captive screw connector on the back of the AT-GAIN-VOL.



Connecting to a Control System

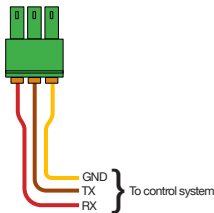
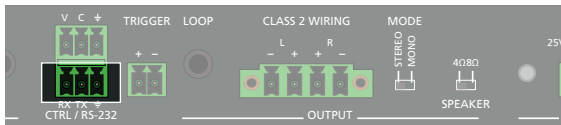
Before connecting to a control system, the AT-GAIN-M50-LZ may need to be configured over RS-232.

1. Connect an RS-232 cable, using a USB dongle, from the computer to the **CTRL / RS-232** port on the AT-GAIN-M50-LZ.
2. Use a terminal client, such as Hercules, to establish a serial connection to the AT-GAIN-M50-LZ.
3. The default baud rate settings for the AT-GAIN-M50-LZ are: 115200,N,8,1.
To change the baud rate settings, execute the `Cspara` command.

Example: `Cspara[9600,8,0,1]`

Refer to the AT-GAIN-M50-LZ API for a full list of commands.

4. Close the terminal session and disconnect the RS-232 cable between the computer and the AT-GAIN-M50-LZ.
5. Connect one of the included 3-pin captive screw connectors to the bottom port and wire the port as shown below.
6. Connect the opposite end to the control system.



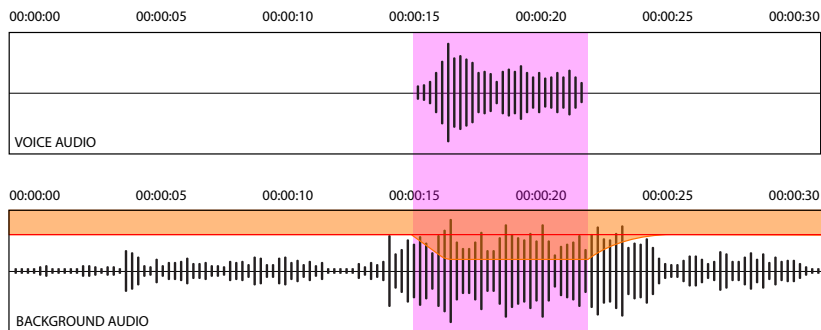
Ducking

Overview

Audio ducking is a technique where the volume of one sound (usually background music) is automatically reduced when another sound (often a voice or main audio) is present. Ducking temporarily “ducks”, or lowers, the volume level of one audio signal anytime a second audio signal is present.

In *Figure 1.1*, two separate audio channels are shown: voice and background audio. The area highlighted in purple, between 00:00:15 and approximately 00:00:22, indicates the time at which the audio ducking takes place—that is, when the voice audio is present.

Figure 1.1



At 00:00:15, the background audio is automatically reduced to the level indicated by the shaded area in orange. This reduction in volume of the background audio is performed through a technique called *sidechain compression*, which uses the level of one audio channel to trigger a compressor in order to control the volume level of another audio channel.

Settings

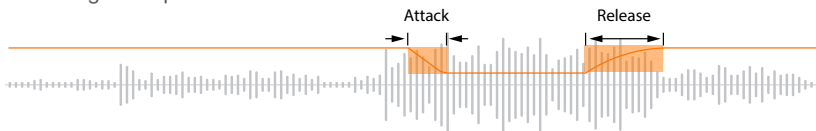
The AT-GAIN-M50-LZ offers four values for adjusting ducking performance. The shaded area in orange, in *Figure 1.1*, will be examined to understand how these settings function.

Attack

The time, measured in milliseconds, required to reduce the audio track’s volume to the designated ducking level (refer to **Program Decrease** on the next page).

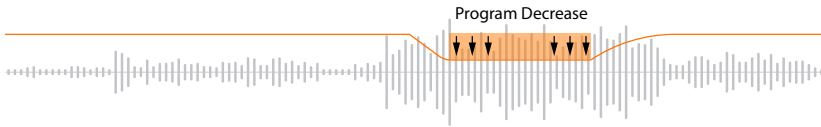
Release

The time, in milliseconds, that it takes for the background audio to return to normal after the voice audio signal stops.



Program Decrease

The maximum volume reduction in decibels (dB) that occurs when ducking is triggered. This region lies between the attack and release phases.



Trigger

The audio trigger level, in decibels (dB). When this trigger level is exceeded, audio ducking is activated, reducing the background audio channel volume. Once the audio level falls below this threshold, the background audio channel returns to its normal volume.



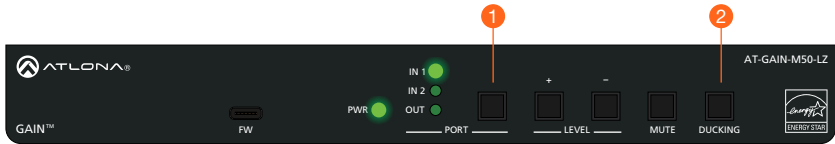
The following presets are used by the AT-GAIN-M50-LZ. To adjust these values, changes must be made using the `MIC` command. Refer to the AT-GAIN-M50-LZ API document for more information.

Parameter	Description	Range
<code>on</code>	Enables microphone	N/A
<code>off</code>	Disables microphone	N/A
<code>atime</code>	Attack time (ms)	1...1000
<code>rtime</code>	Release time (ms)	1...3000
<code>sens</code>	Microphone sensitivity level (dB)	-60...0
<code>reduce</code>	Background noise reduction (dB)	-60...0

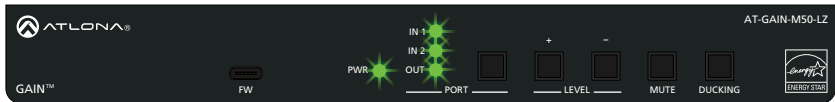
Setting	Preset Value	Range
Attack (ms)	100 ms	1...1000
Release (ms)	1000 ms + 300 ms ramp	1...3000
Program Decrease (dB)	-20 dB	-60...0
Trigger (dB)	-30 dB	-60...0

Performing a Factory Reset

1. Simultaneously press and hold both the **PORT** (1) and **DUCKING** (2) buttons for 10 seconds.



2. The LED indicators on the unit will flash to indicate the factory reset has occurred.
3. Release the **PORT** and **DUCKING** buttons when the LED indicators begin flashing.



Mounting Instructions

The AT-GAIN-M50-LZ includes two mounting brackets and four mounting screws, which can be used to attach the units to any flat surface.

1. Locate the four screws included in the packaging and set them aside.
2. Using a Phillips screwdriver, remove the top two screws from one side of the AT-GAIN-M50-LZ enclosure.
3. Align the mounting bracket with the side of the AT-GAIN-M50-LZ and fasten it using two screws from the packaging along with the two previously removed enclosure screws.



IMPORTANT: Avoid using high-torque tools on the machine screws, as excessive force may damage the enclosure or strip the screws.



4. Repeat steps 2 and 3 for the opposite side of the AT-GAIN-M50-LZ.

Mounting Instructions (continued)

5. Mount the unit using the oval-shaped holes, on each mounting bracket. If using a drywall surface, a #6 drywall screw is recommended.



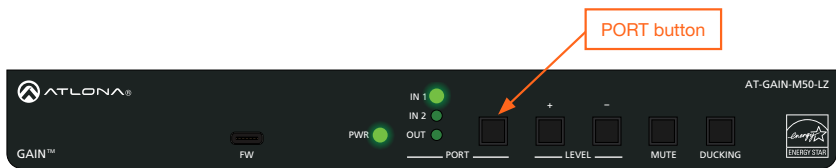
NOTE: Mounting brackets can also be inverted to mount the unit under a table or other flat surface.



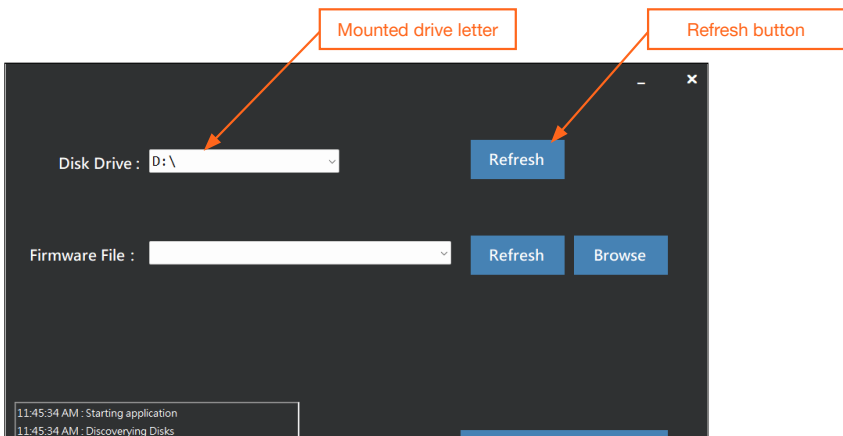
Updating the Firmware

Requirements:

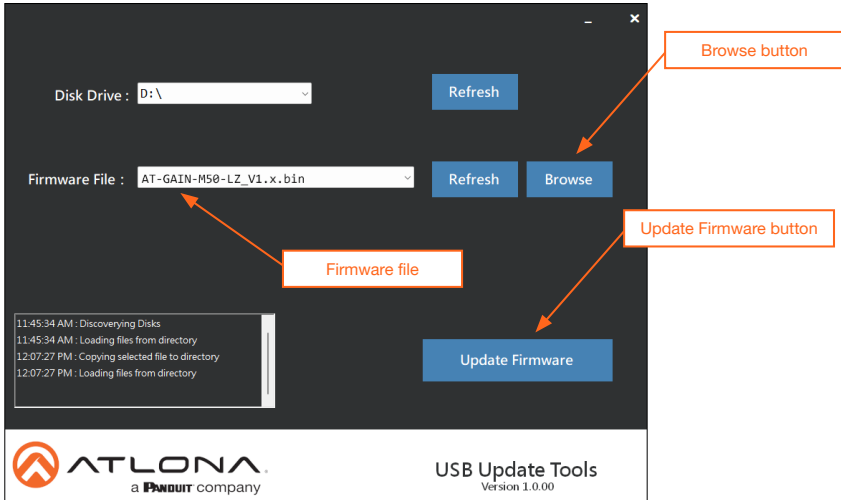
- AT-GAIN-M50-LZ
 - Firmware file
 - Computer running Windows
 - USB-C cable
 - USB Firmware Update Tool
1. Download the firmware file from atlona.com and extract the contents of the .zip file to a folder on the computer desktop.
 2. Disconnect power from the unit.
 3. Connect the USB-C cable from the **FW** port on the AT-GAIN-M50-LZ to the computer. USB-C to USB-C or USB-A to USB-C cables can be used.
 4. While pressing and holding the **PORT** (1) button, reconnect power to the AT-GAIN-M50-LZ.




5. If a USB UPDATE folder is opened automatically, notate the drive letter and close the folder.
6. Launch the USB Update Tool.
7. The drive letter of the mounted drive for the unit will be displayed in the **Disk Drive** field. If it is not, click the **Refresh** button.

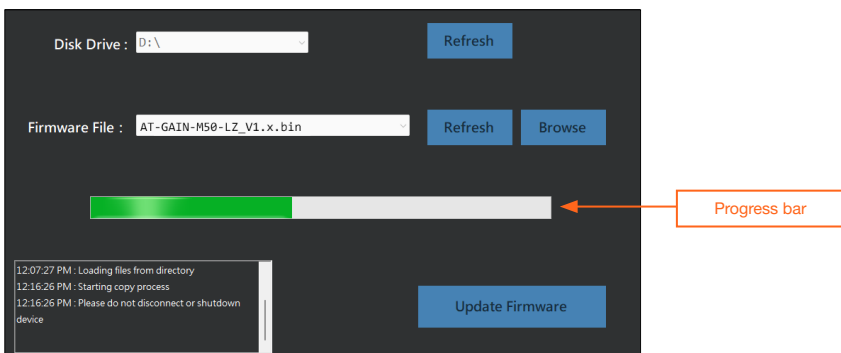


- Click the **Browse** button and select the firmware file. Once the firmware file is selected, it will appear in the **Firmware File** field. If the firmware file is not displayed in this field, click the **Refresh** button.
- Click the **Update Firmware** button.



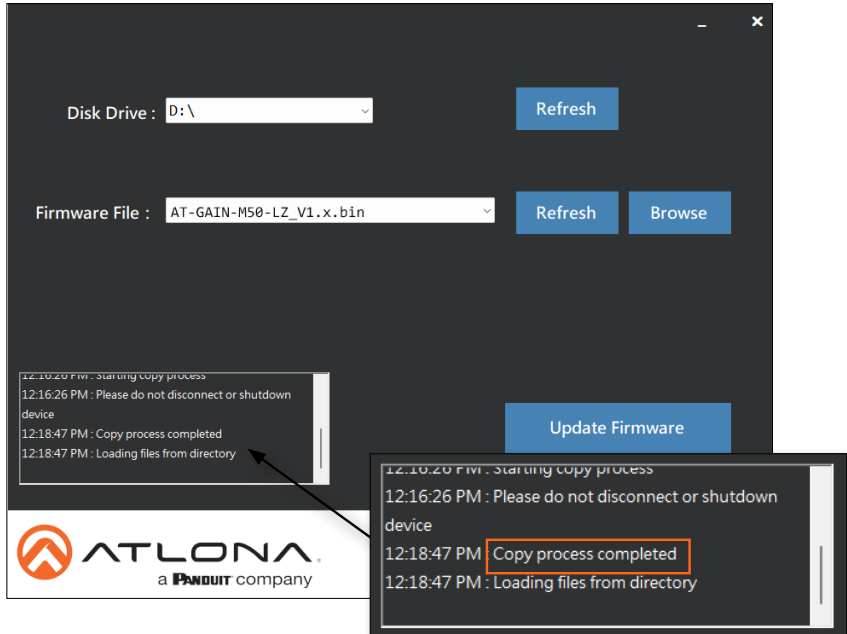
- The firmware update process will begin and will be monitored by a progress bar.

 **IMPORTANT:** Do not disconnect power from the unit while performing the firmware update procedure.



11. After the update process has completed, the `Copy process completed` message will be displayed in the message window.

The **PWR** LED indicator, on the front panel, will flash green while the unit is being updated. Do not disconnect the USB cable during the update process. When the **PWR** LED stops flashing and is solid green, the update process will be complete.





Notes

Notes

Warranty

To view the product warranty, use the following link or QR code:

<https://atlona.com/warranty/>.



English Declaration of Conformity

The English version can be found under the resources tab at:

<https://atlona.com/product/at-gain-m50-lz/>.



Chinese Declaration of Conformity 中国RoHS合格声明

由SKU列出於:

<https://atlona.com/about-us/china-rohs/>.

