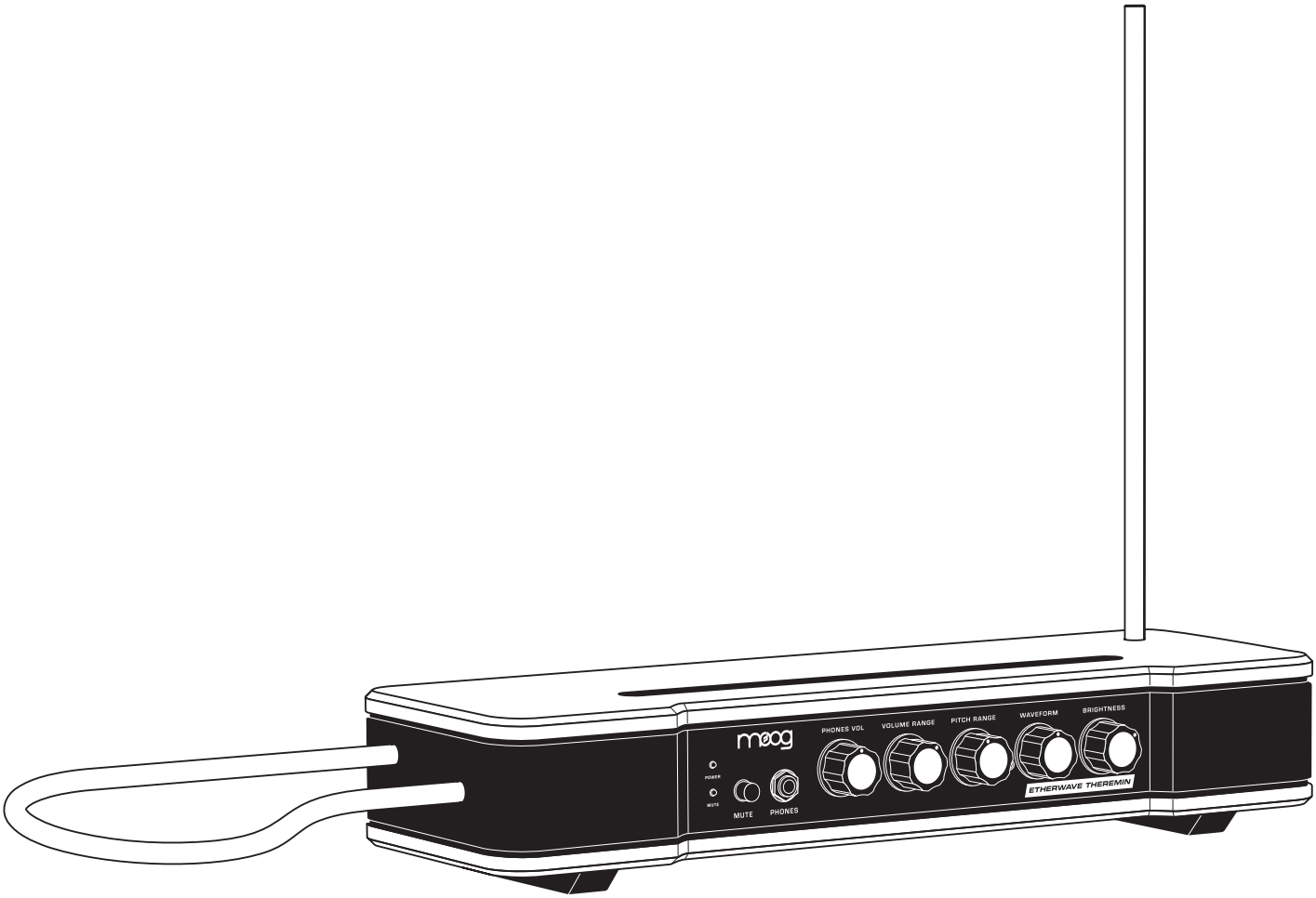
ETHERWAVE THEREMIN

USER'S MANUAL


moog
PHONES VOL
VOLUME RANGE
PITCH RANGE
WAVEFORM
BRIGHTNESS
POWER
MUTE
MUTE
PHONES
ETHERWAVE THEREMIN

"As electronics go, the theremin is very simple. But there are so many subtleties hidden in the details of the design. It's like a great sonnet, or a painting, or a speech, that is perfectly done on more than one level."

- Dr. Robert Moog -

IMPORTANT SAFETY INSTRUCTIONS

WARNING! WHEN USING ELECTRIC PRODUCTS, THESE BASIC PRECAUTIONS SHOULD ALWAYS BE FOLLOWED:

1. Read all the instructions before using the instrument.
2. Do not use this product near water—for example, near a bathtub, washbowl, or kitchen sink; in a wet basement; or near a swimming pool.
3. This product, in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable.
4. The product should be located so that its location does not interfere with its proper ventilation.
5. The product should be located away from heat sources such as radiators, heat registers, or other products that produce heat. No naked flame sources (such as candles, lighters, etc.) should be placed near this product.
6. Do not operate in direct sunlight.
7. The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.
8. The power supply cord of the product should be unplugged from the outlet when left unused for a long period of time or during lightning storms.
9. Care should be taken so that objects do not fall, and liquids are not spilled, into the enclosure through openings.

There are no user serviceable parts inside. Refer all servicing to qualified personnel only.

NOTE: 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 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. However, there is no guarantee that interference will not occur in a particular installation. 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:

— Reorient or relocate the receiving antenna.
— Increase the separation between the equipment and receiver.
— Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
— Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Please note that any changes or modifications made to this product not expressly approved by Moog Music, Inc. could void the user's authority granted by the FCC to operate the equipment.

OPERATING CONDITIONS AND STORAGE: For optimal performance you should use your Etherwave Theremin between 50–95 degrees Fahrenheit or 10–35 degrees Celsius. Safe operating conditions are within the range of 50–110 degrees Fahrenheit or 10–43 degrees Celsius. Your Etherwave Theremin should be stored in temperatures above 32° F (0°C) but never greater than 135° F (57°C).
Do not leave your Etherwave Theremin in a vehicle on a hot day with the windows closed. Temperatures in a vehicle can exceed 175° F (80°C).

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RANGE KNOBS PAGE 20

These knobs adjust the playing range of the corresponding antennas. Readjust when setting up your theremin in a new space to compensate for changes in the environment.

PITCH ANTENNA PAGE 14

The Pitch Antenna controls the pitch of your Etherwave Theremin.

HEADPHONES PAGE 19

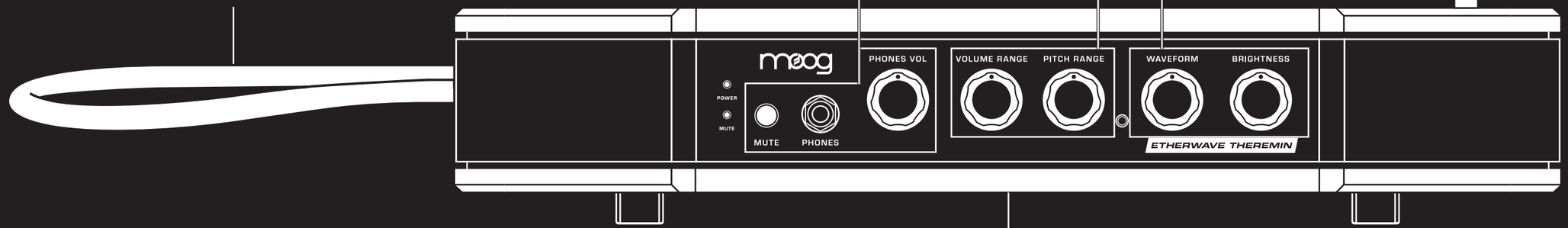
Enjoy your Etherwave Theremin via headphones. The dedicated volume knob sets the level. This output is unaffected by the **MUTE** button.

TIMBRE CONTROLS PAGE 21

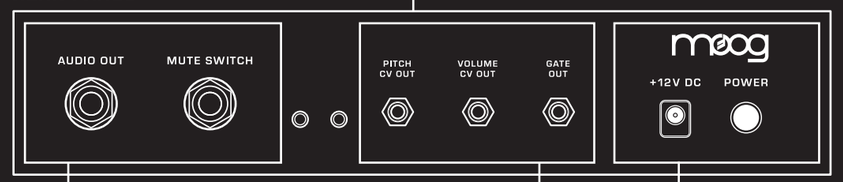
This pair of knobs affects the timbre, or tonal quality, of your Etherwave Theremin.

VOLUME ANTENNA PAGE 14

The Volume Antenna controls the volume level of your Etherwave Theremin.



REAR PANEL



AUDIO OUT / MUTE PAGE 22

Activate the **MUTE** feature via the front panel button or an optional footswitch connected here. The headphone output is unaffected.

POWER PAGE 23

Using the included adapter, connect the instrument to a properly grounded wall outlet. Grounding is required for stable operation.

CV / GATE JACKS PAGE 22-23

Use your Etherwave Theremin to control other modular and Eurorack devices using these output jacks.

ETHERWAVE THEREMIN

UNPACKING AND INSPECTION

Be careful when unpacking your new Moog Etherwave Theremin so that nothing is lost or damaged. We recommend saving the carton and all packing materials in case you ever need to ship the instrument for any reason.

Etherwave Theremin ships with the following items:

1. Etherwave Theremin
2. Pitch Antenna (Straight Tube)
3. Volume Antenna (Loop Tube)
4. Microphone Stand Adapter (attached)
5. Calibration Tool
6. Power Supply
7. User's Manual
8. Registration Card

What you will need:

1. A standard microphone stand, Moog theremin stand, or a non-metallic surface (free of metal supports or accents) capable of supporting your Etherwave Theremin.
2. A 1/4" instrument cable and amplified speaker, or headphones with a 1/4" plug.
3. A properly wired and grounded AC outlet.

NOTE: *The player's entire body acts as the ground in the LC (Inductance/Capacitance) circuitry at the heart of Etherwave Theremin; therefore, a properly grounded connection is required for stable operation.*

SETUP AND CONNECTIONS

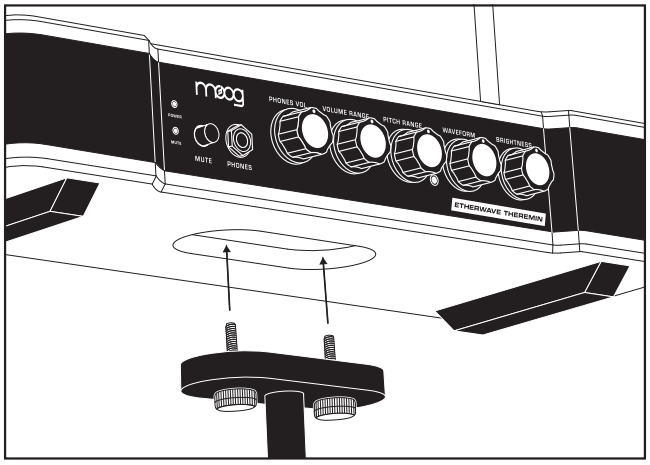
Let's begin by getting your Etherwave Theremin properly positioned, attaching the antennas, making the right connections, and then adjusting the antenna response so that you can begin to enjoy playing your instrument.

PLACEMENT

Your Etherwave Theremin requires either a standard microphone stand (preferred), or a small non-metallic table standing 36" to 42" (91cm to 106cm) high. The included microphone stand adapter is secured using the two thumbscrews as shown below. If a table is used, no objects on the table should be within a foot or two of the instrument, and Etherwave Theremin itself should be positioned so that the Volume Antenna will overhang the edge of the table. Your Etherwave Theremin should be positioned away from walls and other large stationary objects because nearby large objects will affect the performance of the Etherwave's antennas.

USING THE MIC STAND ADAPTER

The microphone stand adapter/mounting plate was created to make setup of your Etherwave Theremin quicker and more efficient. No tools are required. The mounting plate consists of a small metal oval that fits into a recess in the bottom of the instrument. In the center of the mounting plate there is a threaded hole. On either side are two smaller holes. Each of these smaller holes contains a captive thumbscrew. The thumbscrews are used to attach the mounting plate to the Etherwave Theremin body. By design, the mounting plate can remain attached to the microphone stand itself; the thumbscrews connect and detach the instrument from the mounting plate. This prevents the cumbersome task of spinning Etherwave Theremin—antennas and all—onto the threads of the microphone stand. Instead, the stand and mounting plate remain stationary, and the thumbscrews are used to hold it all in place.



STEP 1 - With the heads of the captive thumbscrews facing down, attach the mounting plate to a common 5/8" 27 TPI US-threaded microphone stand by matching up the threads and spinning the mounting plate in a clockwise direction, until tight.

STEP 2 - Place Etherwave Theremin on top of the mic stand and adapter assembly, so that the mounting plate fits into the recess in the bottom of the instrument.

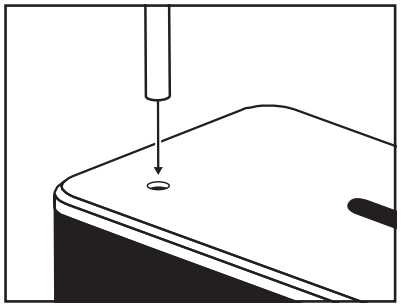
STEP 3 - Tighten both of the captive thumbscrews until secure. Each will connect to a threaded insert in the body of the instrument.

NOTE: *Double check to make sure both thumbscrews are tightened snugly. There is no need to tighten them more than finger-tight—remember, you will most likely be taking them out again.*

REMOVING ETHERWAVE THEREMIN

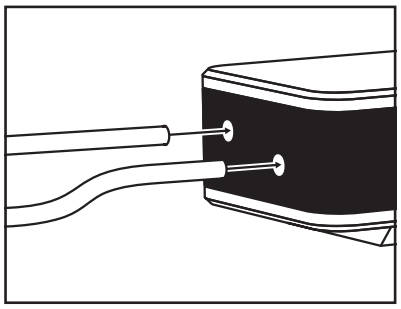
To remove the instrument from the microphone stand and adapter, simply loosen and remove the two captive thumbscrews, then carefully lift Etherwave Theremin from the mounting plate and stand.

SETUP AND CONNECTIONS *(Continued)*



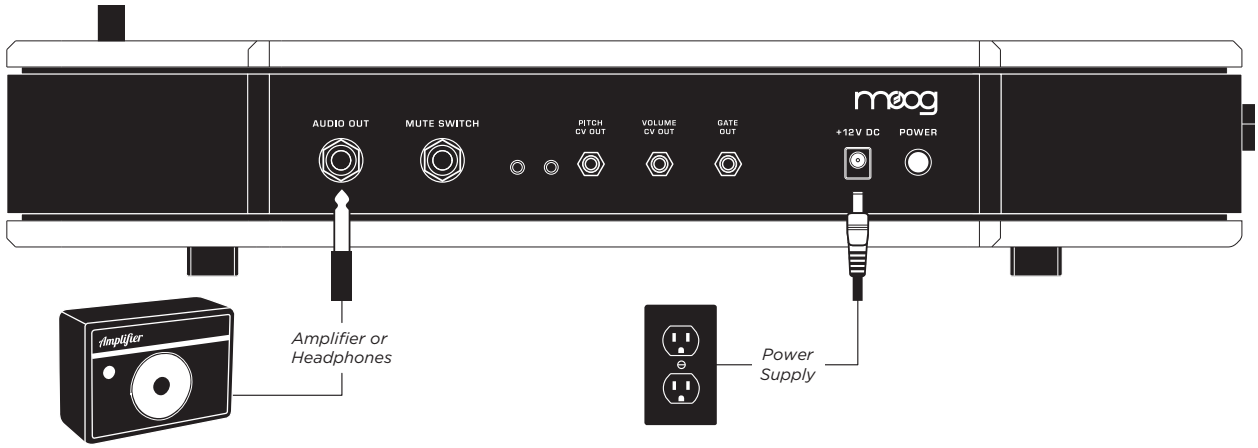
ATTACHING THE PITCH ANTENNA

The Pitch Antenna, which is the long straight tube, is inserted into the Pitch Antenna opening on the Etherwave Theremin top panel. Gently insert the Pitch Antenna into the opening (located in the far right-hand corner of the top panel) so that it sticks straight up like the mast on a boat. Ensure that the antenna is seated snugly and securely.



ATTACHING THE VOLUME ANTENNA

The Volume Antenna, which is the looped tube, is inserted into the two Volume Antenna openings located on the left-hand end panel of your Etherwave Theremin. Gently insert the Volume Antenna into the two Volume Antenna receptacles, so that the bend in the loop is facing toward the performer. Ensure that the antenna is seated snugly and securely.



POWER

Plug the included power adapter into the +12V DC power jack on the rear panel of your Etherwave Theremin. Pressing the **POWER** button turns your instrument On. The front panel **POWER LED** indicator will remain lit (red) to indicate that the instrument is powered On.

AUDIO OUT

First, plug one end of a 1/4" instrument cable (TS) into the **AUDIO OUT** jack on the rear panel. Then plug the other end into an amplified speaker or mixing console input.

PHONES OUT

Your Etherwave Theremin includes a convenient 1/4" headphone jack on the front panel, complete with a dedicated headphone volume control (**PHONES VOL** knob). Be sure to keep the headphone cable secured so that it does not interfere with the Pitch Antenna.

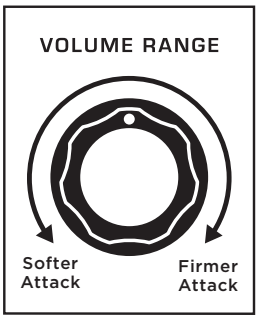
NOTE: *This headphone jack is unaffected by the status of the* ***MUTE*** *button (page 19).*

TUNING UP

Tuning each antenna is an important part of being able to perform on your Etherwave Theremin with precision, and being able to achieve the highest order of control. Please note that all theremins are sensitive to their immediate surroundings, and these tuning steps should be performed every time you turn the unit on and get ready to play. As you and your Etherwave Theremin become more acquainted, performing these tuning steps will become second nature to your theremin experience.

NOTE: *A more complete explanation of the* ***VOLUME RANGE*** *knob and* ***PITCH RANGE*** *knob can be found later in this manual in the section titled* ***ANTENNA FUNCTIONS*** *(page 20).*

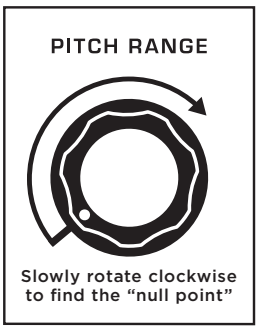
TIP: *Begin with the* ***WAVEFORM*** *and* ***BRIGHTNESS*** *knobs set to their midpoint (12 o'clock) position.*



TUNING THE VOLUME ANTENNA

Begin with the **VOLUME RANGE** knob in the midpoint (12 o'clock) position and your volume hand floating just above the Volume Antenna so that no sound is heard. Move your volume hand up and down at varied speeds and notice the way your Etherwave Theremin responds with changes in volume. Using your pitch hand, turn the **VOLUME RANGE** knob counterclockwise to introduce slower, smoother dynamics and clockwise to experience faster dynamics approaching a staccato style.

Once you have found the setting that best suits your personal playing style and the music being performed, move your hand away from the Volume Antenna and adjust your sound system so that this note is playing at the loudest level you want to reach.



TUNING THE PITCH ANTENNA

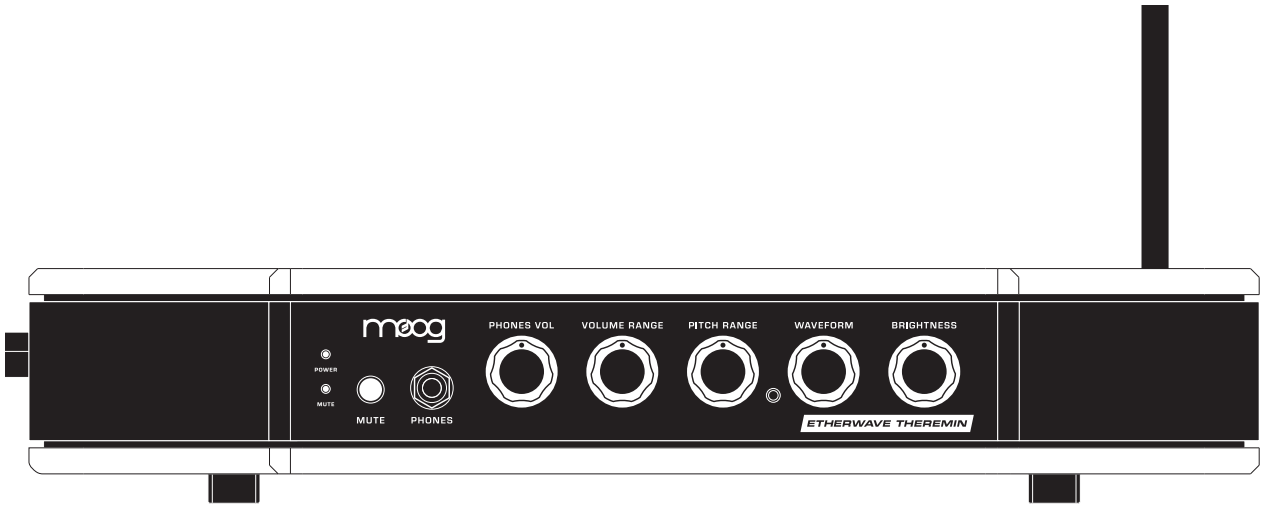
As with the Volume Antenna, begin with the **PITCH RANGE** knob in the midpoint (12 o'clock) position. Without touching the Pitch Antenna, rotate the **PITCH RANGE** knob fully counterclockwise. A high-pitched note will begin to emerge. Rotate the **PITCH RANGE** knob very slowly in the clockwise direction. As you do, you will hear the note drop in pitch.

When the pitch reaches about an octave below Middle C, step back from your Etherwave Theremin. The pitch will continue to decrease until the tone stops completely (null point). This null point is called "zero-beat" because it corresponds to zero vibrations per second or 0 Hz. With your right shoulder about 24" (60cm) from the Pitch Antenna and your arm and hand flat at your side, carefully adjust the **PITCH RANGE** knob so that the pitch of the note is more than two octaves below Middle C. Now your antenna settings are optimized for performance.

TIP: *An electronic tuner can be useful for this operation. Two octaves below Middle C is the lowest note on a cello, and about a Major Third below the lowest note on a six-string guitar.*

ABOUT ETHERWAVE THEREMIN

Your Etherwave Theremin represents the natural evolution of the esteemed Etherwave line of Moog theremins, combining analog playability with unprecedented performance potential. Easily accessible controls allow for spontaneous changes in timbre, and the antennas' response can be adjusted to suit any player and their environment. In addition, your Etherwave Theremin can connect directly to—and control—other modular, semi-modular, and Eurorack synthesizer systems. The efficient design keeps all connections accessible, while keeping any cabling from interfering with the performer. Inside the finished cabinet, analog components and an updated design allow your Etherwave Theremin to achieve peak musical performance. In short, this Etherwave Theremin is all things Etherwave—enhanced for the modern theremin performer.



DIAL IN YOUR SOUND
Waveform and Brightness controls let you vary the tone and timbre of your Etherwave Theremin to meet your performance needs.

CUSTOMIZE THE ANTENNA RESPONSE
Independent controls for the Pitch Range and Volume Range allow you to tailor the response to match your playing style.

CONVENIENT HEADPHONE OUTPUT
The front-mounted headphone output offers a dedicated volume control for easy monitoring.

PERFORMANCE CUE SYSTEM
Activated via the **MUTE** button or an optional footswitch, this function silences only the main Audio Output, leaving the headphone output available for discreetly tweaking your settings.

HIGHLY ACCESSIBLE CABLE JACKS
The CV, Gate, Audio, and Power connections are located on the rear panel for easy access, and to prevent cable clutter near the performer.

PERFORMANCE DESIGN
Etherwave Theremin includes an adapter for mounting the instrument onto a standard microphone stand. Adjusting the height of the mic stand provides a comfortable playing position for performers of nearly any size.

MUSIC FROM THE ETHER

The instrument we now know and love as the theremin was originally christened the Etherphone (Ætherphone). It was a fitting name for an instrument with no reeds to blow, no keys to press, and no strings to bow or pluck. Instead, this was an instrument played by a performer who seemingly conjured music from the ether by the motion of their hands, limbs, and body. Nonetheless, virtuosic performers —including Clara Rockmore—have achieved unprecedented expression by mastering this unique connection between the hands, the body, the environment, and the instrument.

Introduced in 1920 by Soviet scientist Leon Theremin (Lev Sergeyevich Termen), the theremin was embraced by composers and performers of the day—including Edgard Varèse, Joseph Schillinger, and Dmitri Shostakovich. Over the years, the theremin became the backbone for science-fiction movie soundtracks and eerie phenomena. Today, the theremin remains an instrument that inspires awe—and intrigue. The dexterous movements of the artist summon an ethereal sound without touching the instrument in a way that seems slightly magical—as all good technology should.

But the adoption of the theremin owes less to its other-worldly qualities than its strong foundation in the burgeoning world of electronics in the 1920s, then seen as a pathway to aid the human artist in reaching their full potential—much as the computer would do generations later. The theremin remains firmly embedded in the world of electronic music, and has only grown in popularity, due to strong interest in the hardware of electronic music creation, a resurgence of analog synthesizer control, and the instrument's continued appearances in film and pop culture.

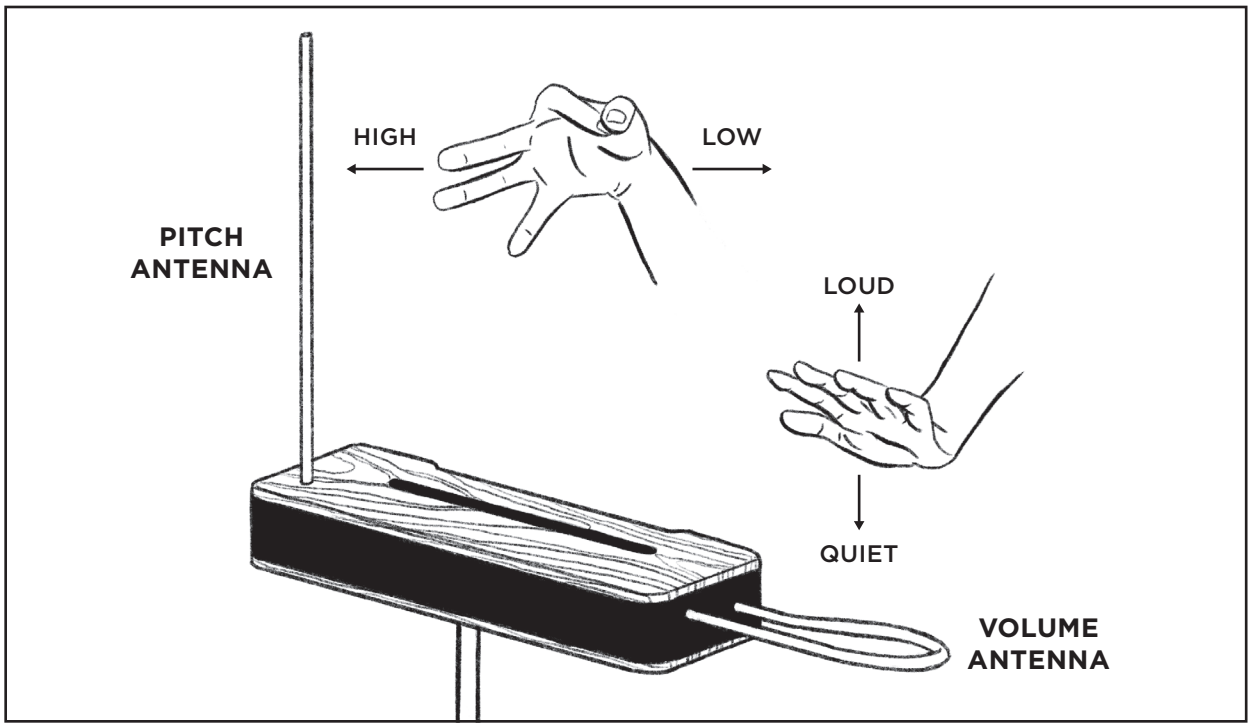
MEET THE ETHERWAVE THEREMIN

The Etherwave Theremin is heir to the name Etherwave—the most popular line of theremin instruments ever available. Proud to be part of the Etherwave family, Etherwave Theremin represents a full step forward. Updated electronics have been used to create Bob Moog's classic theremin circuit designs. The rear panel strip provides easy access to important ports and jacks while also moving cabling as far from the performer as possible. On the front panel, controls are accessible and clearly labeled. A headphone output—with a dedicated volume control—has been added to the front panel, along with a **MUTE** button that silences the audio output, while leaving the headphone output live for privately adjusting the timbre and tuning.

Moog shares a long history with both the theremin and with the Etherwave lineup. Bob Moog loved the theremin, and built his first theremin as a teenager. Before he turned twenty, R.A. Moog was selling mail-order theremins and theremin kits—eventually funding his graduate degree at Cornell through the proceeds of his theremin business. Throughout his career and all of his commercial ventures, the theremin remained near and dear to Bob. His attention to the theremin and the creation of the first Etherwave model at Moog Music (previously Big Briar) remains key in the theremin's steady growth in popularity.

For the novice enthusiast or the seasoned professional player, the Etherwave Theremin offers exceptional sound. The thoughtful design was created for performance. The inclusion of CV and Gate jacks allows your Etherwave Theremin to connect to both new and vintage synthesizers, from the legendary Moog Modular era to today's semi-modular Moog instruments and beyond.

LEARNING HOW TO PLAY



The Etherwave Theremin is traditionally played by interacting with two electronic antennas using subtle hand gestures. The horizontal loop antenna is used to control the volume, and the vertical rod antenna is used to control the pitch. Bringing your hand near the Volume Antenna will decrease the volume, while bringing your hand near the Pitch Antenna will raise the pitch.

The following sections contain helpful information and practice exercises for developing your theremin skills. These suggested techniques are intended to guide your experimentation as you discover and establish your own unique playing style. There is no right or wrong approach; as you get to know the instrument, trust your instincts to lead the way.

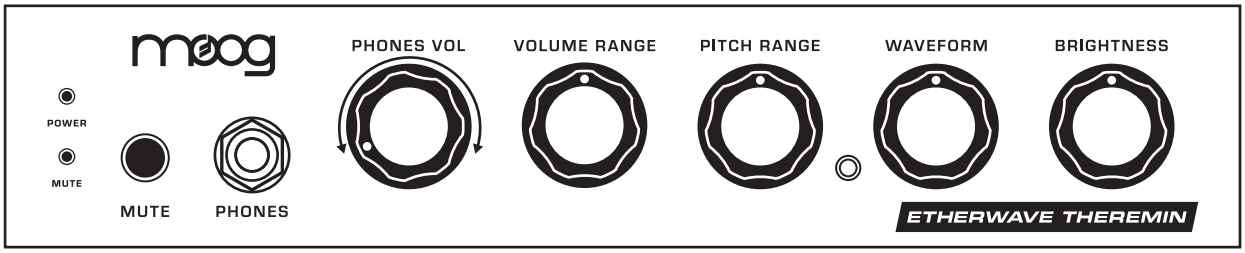
VOLUME ANTENNA

The Volume Antenna controls the volume level of the Etherwave Theremin. Lift your left hand up away from the Volume Antenna to raise the volume of the Etherwave Theremin. Lowering your hand, or increasing its proximity to the looped Volume Antenna, makes the Etherwave Theremin quieter. When your hand is very close, the volume will be muted. You can use changes in the volume to accentuate, play, or not play notes.

PITCH ANTENNA

The Pitch Antenna controls the pitch or frequency that the Etherwave Theremin is playing—relative to the horizontal proximity of the player's hand. Extending your arm outward, bringing your hand closer to the Pitch Antenna, raises the pitch of the Etherwave Theremin. Pulling your hand back, or reducing its proximity to the Pitch Antenna, lowers the pitch—or frequency—of the instrument. You can use changes in proximity to play different notes.

GETTING STARTED - CLASSIC THEREMIN



1. Set your Etherwave Theremin controls to the above knob positions.

2. Stand facing the front panel of your Etherwave Theremin with your body about 12" back and slightly left of center.

3. Your belly button should be in line with the left edge of the front panel.

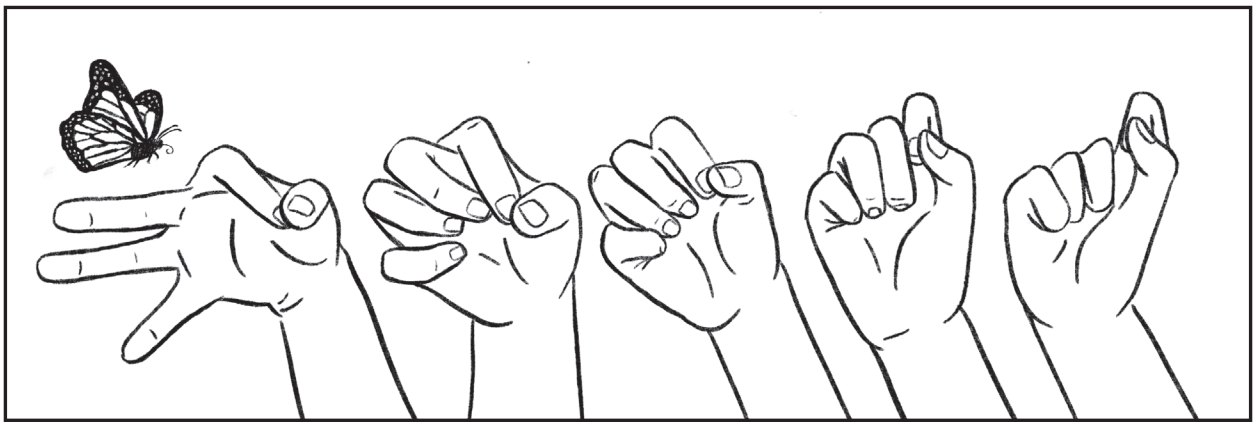
4. Adjust your position so that you are about an arm's length away from the Pitch Antenna.

5. Place your legs slightly apart to keep your body as still as possible.

6. Relax your shoulders and drop your elbows to your waist.

7. Hold your left hand just above the loop of the Volume Antenna, while positioning your right hand in a rest position with your pointer finger resting on your thumb (as shown on the far right in the illustration below).

8. Slowly raise your left hand up to hear your Etherwave Theremin.



Notice that it only takes incredibly small movements with your pitch hand to articulate a wide range of notes. Subtly moving a knuckle or slightly extending your pinky is all that is required to move to the next note, while opening your fist and spreading out your fingers can raise the pitch of your Etherwave Theremin a full octave. If you find that your pitch sensitivity range is too small or too big for you to easily control, you can adjust the **PITCH RANGE** knob *(page 20)* to specify the playing range.

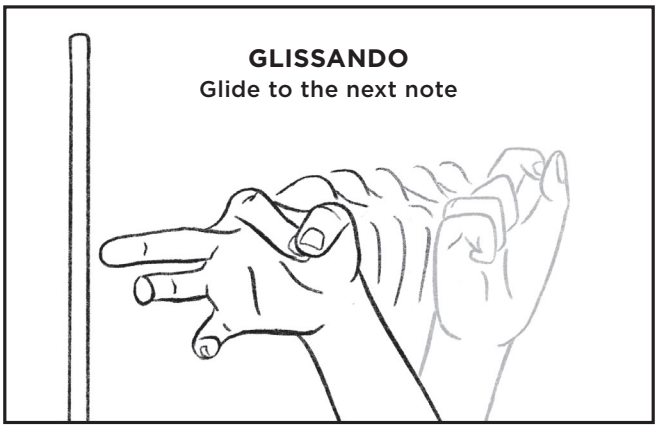
Clara Rockmore, widely regarded as the most skillful thereminist in history, utilized a technique with tiny knuckle extensions. She would start with a loosely closed fist, uncurling her pinky, ring, and middle fingers outward in small steps while keeping her index finger resting on the thumb. As a beginning player, this is a good place to start.

NOTE: *Avoid large, forceful hand gestures, and focus on light, delicate movements. Imagine tickling butterflies rather than clutching guitar strings.*

PLAYING EXERCISES AND TECHNIQUES

The theremin has been described as one of the most difficult instruments to play due to the lack of a physical interface. Unlike an instrument that provides physical feedback as to where each note lies, the thereminist must rely strictly on their ears to find each note. The most difficult obstacle to overcome is learning to control both the pitch and volume simultaneously. While each gesture by itself is quite simple, performing these two motions at the same time can feel a bit awkward. Fortunately, all it takes is a little practice. If you use your hands to hold utensils while you eat, you'll be fine.

PITCH HAND EXERCISES



1. Hum a note. Moving only your pitch hand, try to find that same note. When you find it, hold it steady and hum another note just a few tones higher.

2. Now gradually extend your fingers to raise the pitch and "glide" to the new note. This glide is called a *glissando*.

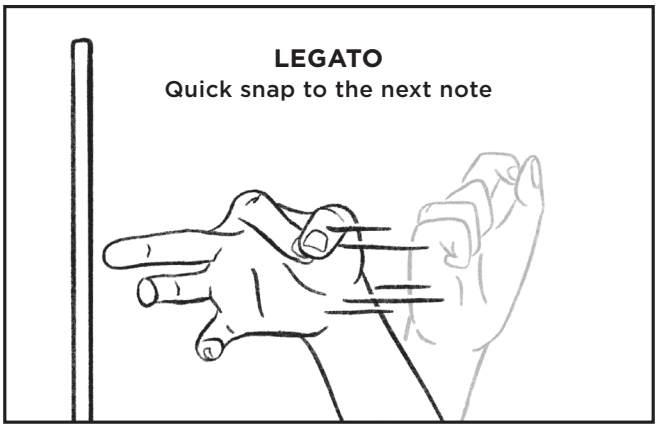
3. Now slide back down to the first note. ***NOTE:*** *You can use an instrument tuner (connected to the* ***PHONES*** *or* ***AUDIO OUT*** *jack of your Etherwave Theremin) as a visual aid to help guide you, but more importantly, listen to the change and distinct sound of each note.*

4. Now hum a third note that is slightly higher than the second. Play the first note, slide to the second, pause, and then glide to the third.

5. Start at the third note and then play down to the first.

Practice this a few times, going up and down, making sure to hit the same three notes. Gradually speed up, while keeping your movements smooth and graceful. Pay attention to how much movement is needed to reach each note. Try to repeat the same movements and finger positions.

When you can consistently glide back and forth across three notes, try this:

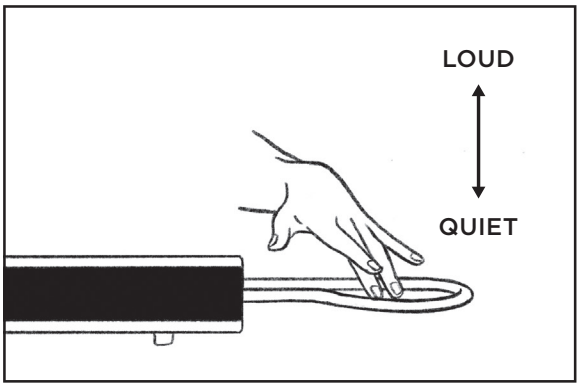


Start at the first note again, but rather than gliding up, make a quick jump to the second note. This will require snapping your hand into the second note position with an abrupt change. This creates the stepped sound of two distinct notes.

Playing notes together like this, with no space in between, is referred to as *legato*. Practice snapping the three notes in order, up and down; then, try larger jumps—snapping from note one to note three.

Experiment by mixing combinations of legato and glissando.

PLAYING EXERCISES AND TECHNIQUES *(Continued)*



VOLUME HAND EXERCISES

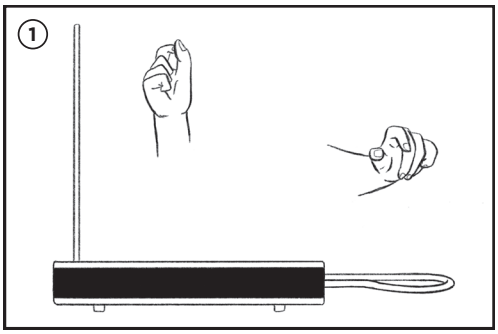
Now that you've gotten your pitch hand in shape, let's work on your volume hand. Keep your pitch hand still and use only the Volume Antenna to articulate notes.

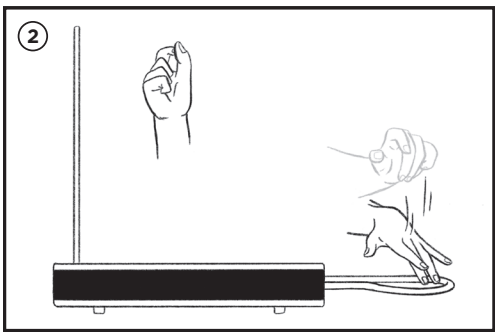
Play any note and slowly raise your left hand to raise the volume. Gradually lower your hand toward the Volume Antenna to reduce the volume.

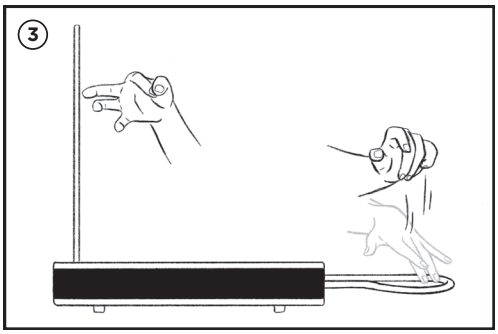
NOTE: *Keep the motion mainly in your wrist as opposed to raising your whole forearm.*

Practice making your movements as smooth as possible. The start of the note is called the "attack" and the end is the "decay." This exercise is an example of a slow attack and slow decay. Try it again, but this time, make your movement as quick as possible, so that there is a dramatic jump in volume.

A fast attack gives you the ability to pluck out sharper sounding staccato notes and rhythms. Practice playing notes with a fast attack and fast decay in groups of three or more; then, try mixing it up by playing notes with a slow attack and fast decay, or with a fast attack and slow decay.







PITCH AND VOLUME EXERCISES

Now it's time to get both hands working in concert.

1. Hum a note and play it aloud.

2. This time, before sliding to the second note, slowly lower the volume all the way using your left hand.

3. Raise your left hand just after your right hand has glided to the second note.

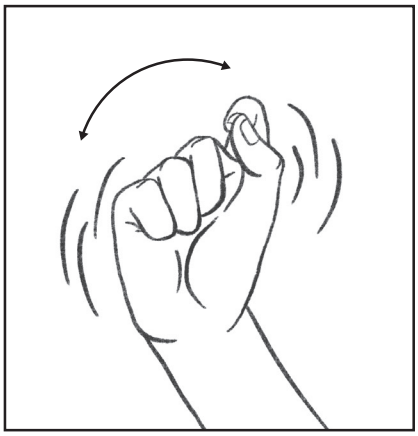
Do this again, syncing a dip of your volume hand as you glide between the second to the third note. Don't get frustrated if you find it difficult to keep both hands moving accurately at the same time; just keep practicing!

EXPRESSIVE VOLUME

There is a wide range of loudness that the thereminist can employ to liven up their playing. Try playing with your volume hand about three-quarters of the way up. From here, just a casual raising of your hand or fingers makes the volume swell; dipping your fingers or wrist slightly makes the volume drop. This variation in volume adds articulation and depth to your playing, while also highlighting specific notes or passages of music.

Try attenuating the volume to emphasize the mood in your playing, making some sections soft and others loud. If you find that your volume sensitivity range is too small or too big for you to easily control, you can adjust the **VOLUME RANGE** knob *(page 20)* to specify the distance between the *near* volume and the *far* volume to suit your needs.

Ideally, you should be able to go from full mute to maximum loudness with just a flip of the wrist.



VIBRATO

Vibrato is an effect created by shaking your hand and rhythmically "bending" notes back and forth, causing a vibration of the pitch frequency.

This can make certain passages seem more mysterious or interesting. A strong, fast vibrato will add tension or drama to a passage, while a slow and delicate vibrato creates a subtle movement that can soften or sweeten a passage. To perform vibrato, simply give your pitch hand a slight wiggle. The trick is learning to sync the back-and-forth motions in a way that is musically appropriate to what you are playing.

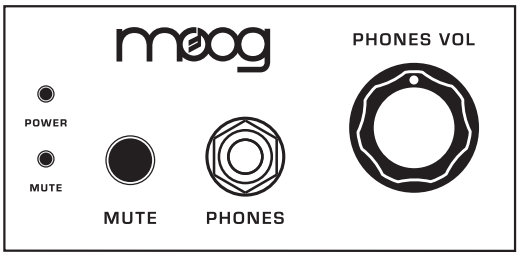
Keep your movements small and gentle. You are bending the note up and down just slightly. Vibrato that is too wide, covering several steps, is a trill and generally doesn't sound as pleasant. There is no "correct" way to perform vibrato, but generally you want to find a technique that is both precise and physically comfortable to sustain.

Using only your wrist to provide the necessary back-and-forth motion can become painful even after just a few minutes. Instead, try leaving your wrist relaxed and flexible, using mainly forearm movements to shake your hand.

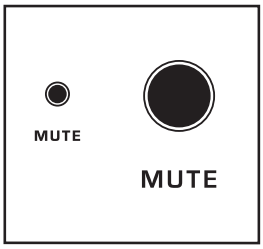
CONTROLS AND FUNCTIONS

The controls on the front panel of your Etherwave Theremin are grouped together by function, providing intuitive operation of your theremin. This manual will deal with each group of controls, first collectively, and then individually.

MUTE AND MONITOR



Muting and monitoring controls are conveniently located on the front panel, where they are easily accessible during performance. This arrangement also minimizes interference by keeping the headphone cable away from other cabling, or from intruding on the performance space.

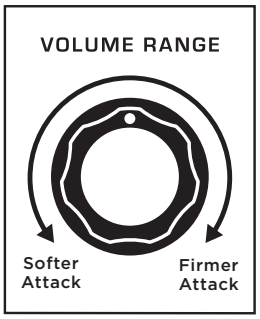


MUTE
Pressing the **MUTE** button stops any audio signals from being sent from the **AUDIO OUT** jack on the rear panel. The **MUTE** LED indicator will remain lit (red) as long as the Mute Function is On. The **PHONES** output is unaffected by this **MUTE** button, allowing the settings and tuning to be adjusted and checked discreetly, before or during your performance.

PHONES/PHONES VOL
Connecting a set of headphones to the 1/4" **PHONES** jack allows you to monitor your performance. The dedicated **PHONES VOL** knob sets the listening level for the **PHONES** output only. Even when the **MUTE** LED indicator is lit and the Mute Function is On, the **PHONES** output will remain active, so that any parameters can be adjusted and cued up without broadcasting an audio signal to the audience.

ANTENNA FUNCTIONS

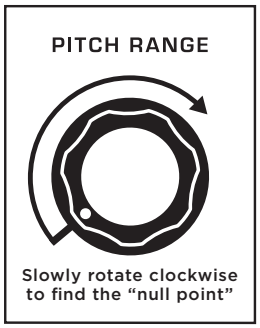
In the **TUNING UP** section of this manual *(page 11)*, you already learned how to tune each of the antennas for optimal performance. This section deals a bit more with what is actually changing and being controlled as you adjust the antenna range knobs.



VOLUME RANGE

In the theremin world, generally the left hand is used to control the volume and articulation of each note. Bringing the hand closer to the Volume Antenna (the Loop Antenna) will decrease the volume, until eventually, with the hand close to or inside the loop, there is no sound. Moving the hand further away will increase the volume.

When adjusting the Volume Antenna Range, you are actually setting the rate of volume change caused by your hand motion. That is, if you want a finer control of soft attacks and dynamics, you might try a lower (counterclockwise) value for the **VOLUME RANGE** knob. If you want to play individual notes cleanly and with a firmer attack, rotate the **VOLUME RANGE** knob in the clockwise direction.



PITCH RANGE

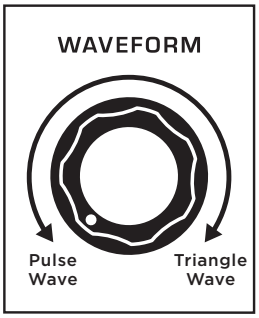
Conversely, the right hand is generally used to control the pitch of each note. Bringing the hand closer to the Pitch Antenna will raise the pitch; moving the hand (and/or fingers) further away will lower the pitch, until eventually there is no sound. The **PITCH RANGE** knob allows the performer to define a useful playing range by setting the pitch of the null point—that is, the pitch that will sound when the performer's hand, arm, or body is no longer affecting the pitch.

Getting familiar with the Pitch Antenna response is probably the single most important factor is developing a strong theremin technique. Use the procedure described in the **TUNING UP** section of this manual, and check this parameter each time you prepare to play. In time, you will be comfortable tweaking the response during breaks in a performance or session to achieve the best control.

TIMBRE PARAMETERS

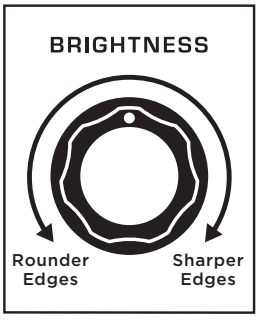
This pair of parameters can be used to modify and transform the sound of your Etherwave Theremin by changing the tonality and harmonic content to suit your preference or your performance. Each parameter has its own function, but both are part of the analog wave shaping circuitry.

***TIP:** Begin with both the **WAVEFORM** and **BRIGHTNESS** knobs in the midpoint (12 o'clock) position.*



WAVEFORM

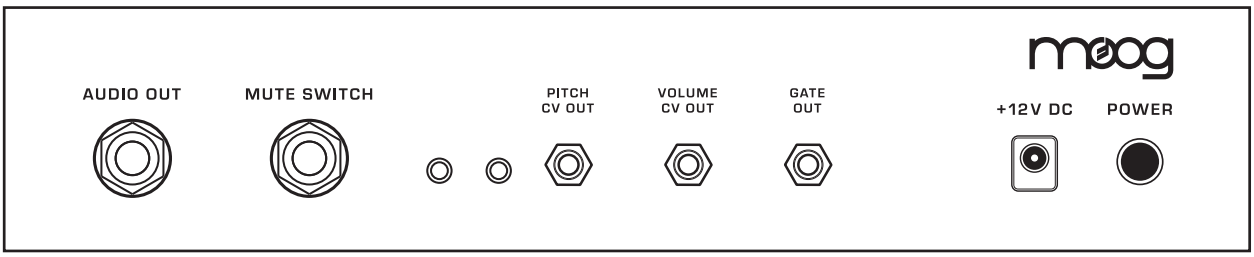
This parameter controls the analog wave shape, thereby changing the harmonic content. With this knob in the fully counterclockwise position, the initial wave will resemble a pulse wave, creating a "reed" or "nasal" tone. As the **WAVEFORM** knob is rotated clockwise, the initial wave will morph into a slightly skewed triangle wave, creating a more "vocal" tone.



BRIGHTNESS

This parameter modifies the transient time (or slew) of the edges of the wave itself to alter the harmonic content. Rotating the **BRIGHTNESS** knob clockwise will increase the "sharpness" of the edges of the wave, adding more overtones and increasing the harmonic content. Rotating the **BRIGHTNESS** knob counterclockwise will produce a "rounder" edge to the wave, resulting in fewer overtones, thus decreasing the harmonic content. The midpoint (12 o'clock) position is a good starting place for a traditional theremin timbre.

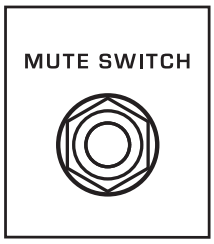
REAR PANEL CONNECTIONS



The rear panel provides a number of jacks that can greatly enhance your Etherwave Theremin experience. By design, these connectors have been placed away from the player, so as not to interfere with the performance. In addition to the necessary power and audio connections, your Etherwave Theremin also provides a number of CV (Control Voltage) jacks used for controlling other analog synthesizers and modules.

AUDIO OUT

This is the main instrument output. Use a 1/4" instrument cable (TS) connected here to send an audio signal to an amplifier, monitoring system, or recording console. No signal is sent from this output when the **MUTE** button on the front panel is engaged (**MUTE LED** indicator lit).



MUTE SWITCH

In addition to using the **MUTE** button on the front panel, the Mute Function can also be turned On and Off using an optional footswitch plugged into this jack. In either case, the **MUTE** LED indicator will remain lit (red) while the Mute Function is engaged.

MUTE SWITCH 1/4" (TS): Either a momentary or latching footswitch can be used. A normally closed momentary footswitch will mute the instrument until the footswitch is pressed and held. A normally open momentary pedal requires the footswitch be pressed and held to mute the instrument. Some footswitches allow the user to select between normally open and normally closed behavior.

CONTROL JACKS

In the world of analog modular synthesizers, there are two types of signals: audio signals and control signals. Control signals use a variable voltage (Control Voltage, or CV) to change the value of a particular parameter. Using these 3.5mm CV jacks, Etherwave Theremin can act as a controller, interfacing directly with modular and semi-modular synthesizers. A more complete explanation of Control Voltage and creative uses for these jacks can be found in the Controlling Moog Synthesizers section *(page 24)* of this manual.

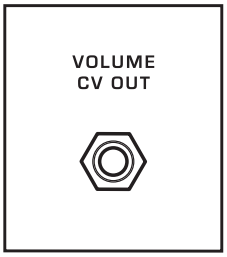
PITCH CV OUT

The Pitch Antenna can be used as a Control Voltage source. The **PITCH CV OUT** value is determined using the one-volt-per-octave (1V/OCT) Control Voltage standard. This output can be used as a CV source for other synthesizer equipment.

PITCH CV OUT (TS): –2.5V to +4.5V

NOTE: *C3 (one octave below Middle C) is calibrated to produce an output of zero volts.*

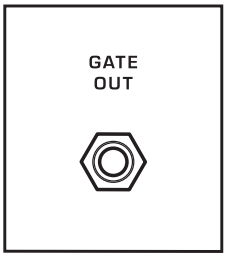
REAR PANEL CONNECTIONS *(Continued)*



VOLUME CV OUT

The Volume Antenna can be used as a Control Voltage source. The value of the **VOLUME CV OUT** is identical to the value used internally to drive the VCA (Voltage Controlled Amplifier) circuitry inside Etherwave Theremin.

VOLUME CV OUT (TS): 0V to 10V

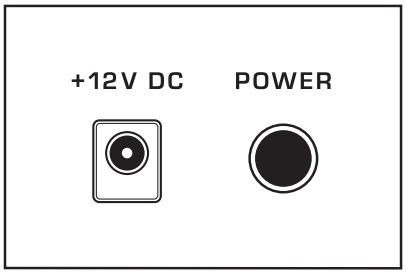


GATE OUT

The Gate Signal is a specific type of Control Voltage. A gate is often used to initiate and sustain an event. Pressing a key on a synthesizer keyboard is a perfect example of a gate; the gate is active once the key is depressed and remains active until the key is released. While there are no keys on the theremin, a gate signal will be generated while a note is being played—that is, when the **VOLUME CV OUT** value is greater than zero volts.

VOLUME CV OUT (TS): 0V (Off) to 10V (On)

POWER



+12V DC

Plug only the power supply that came with your Etherwave Theremin into this connector. Connect the other end to a properly wired and grounded wall outlet.

POWER

Pressing the **POWER** button turns your instrument On. While Etherwave Theremin is On, the **POWER** LED indicator on the front panel will remain lit. When the **POWER** LED indicator is dark, the instrument is Off. Before turning Etherwave Theremin On, be sure that the correct power supply is already connected, and that the volume of any amplifier or monitoring system has been turned down. You may also wish to lower the amplifier or monitoring system volume level before switching Etherwave Theremin Off.

NOTE: *This was mentioned earlier in this manual, but it is worth repeating: because the player's entire body acts as the ground in the LC (Inductance/Capacitance) circuitry at the heart of the Etherwave Theremin, a properly grounded connection is required for stable operation. However, when using a well-grounded (earthed) Etherwave Theremin with a well-grounded (earthed) amplifier, it is possible to introduce a ground loop. In this case, it may be necessary to use a ground-lifting device on either Etherwave Theremin or the amplifier—but not both—to eliminate the ground loop.*

CONTROLLING MOOG SYNTHESIZERS

Etherwave Theremin is an ancestor to the synthesizer and uses Voltage Control to operate. As such, Etherwave Theremin can connect to and interface with modular and semi-modular synthesizers—or really any musical or audio device allowing for Voltage Control. This concept of Voltage Control (VC) is central to the development of the synthesizer and to electronic music in general.

HOW IT WORKS

A Control Voltage is an analog signal of a specific or changing voltage generated by one synthesizer—or other electronic instrument—that is used to control another synthesizer or synthesizer module. There are different types of control signals: there are control signals that provide a variable range of voltage values, and there are other signals that act more as an on/off control, such as a gate. Think of what happens when a note is played on an analog synthesizer. First, a gate signal is created for as long as the key is held down. Secondly, a voltage is created that corresponds to the key being played; this voltage tells the oscillator what pitch to sound. But this same voltage can be used to modify the filter brightness, the envelope release time, etc. On a modern velocity-sensing keyboard, an additional Control Voltage is created based on the velocity used to play the key. Sharing these control signals between instruments, modules, and/or Eurorack systems is how one expands the capabilities of their rig. These Control Voltage signals can be used collectively in playing another instrument in its entirety, or patched individually in order to affect changes to different parameters on different components and even different instruments.

Using Etherwave Theremin to control other modules and instruments can provide amazing levels of expression. Moog semi-modular instruments are excellent expanders for your Etherwave Theremin.

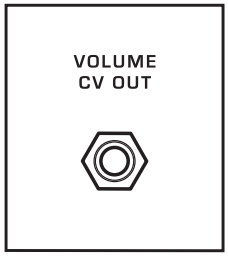
ETHERWAVE THEREMIN CONTROL SIGNALS

While performing, Etherwave Theremin creates three distinct control signals that can be used with other voltage-controllable modules or instruments. These three control signals are sent via a set of dedicated 3.5mm (TS) jacks located on the rear panel. Using patch cables, connect these control signal outputs to control signal inputs on any modular, semi-modular, or Eurorack synthesizer.

PITCH CV OUT (–2.5V to +4.5V)
The Control Voltage signal available from this jack corresponds to the pitch of the note being played by Etherwave Theremin—as determined by the setting of the **PITCH RANGE** knob and the movement of the right hand in proximity to the Pitch Antenna. The value of this signal is set from the factory to provide zero volts (0V) when playing the note C3 (the note one octave below Middle C). The value increases at a rate of one volt per octave (1V/OCT), meaning that playing Middle C would create a value of one volt, playing the note C one octave above that would create a value of two volts, etc.

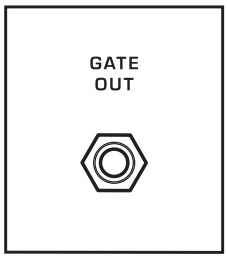
The voltage value available via this jack is derived from the pitch being played, and can be used to set the value of the pitch being played by another module or synthesizer. Keep in mind that Etherwave Theremin can generate not just notes, but continuous changes in pitch as well as true vibratos. This control signal can also be used to control any other parameter that can be voltage controlled—envelope timing, filter resonance, oscillator mix, noise amount, etc.

PITCH CV OUT *(Continued)*
Note that the **PITCH CV OUT** value is generated from an analog circuit that takes two cycles of audio to calculate the CV value. Playing at low frequencies with sudden movements on the Etherwave Theremin may cause jumps or discontinuities in the value of the **PITCH CV OUT**. It is normal, if the theremin goes to zero beat, for the value of the **PITCH CV OUT** to go to a seemingly random value.



VOLUME CV OUT (0V to 10V)
The Control Voltage signal available from this jack corresponds to the volume level of the sound being played by Etherwave Theremin—as determined by the setting of the **VOLUME RANGE** knob and the movement of your left hand in proximity to the Volume Antenna. The value of this signal is set from the factory to provide zero volts (0V) when Etherwave Theremin is silent, and increasing to a maximum value of ten volts (10V) when Etherwave Theremin reaches its maximum level.

As with the **PITCH CV OUT**, the value of the voltage available via this jack is derived from the Etherwave Theremin performance. This control signal can be used to vary the volume level of another module or synthesizer. It can also be used to control any other parameter that can be voltage controlled—attack time, cutoff frequency, effect depth, etc.



GATE OUT (0V/Off to 10V/On)
The Control Voltage signal available from this is a specific type of Control Voltage. So long as Etherwave Theremin is generating sound (the **VOLUME CV OUT** value is greater than zero volts), a gate voltage of ten volts (On) is available via this output. When Etherwave Theremin goes silent (the **VOLUME CV OUT** value is zero volts), the gate voltage will also drop to zero volts (Off).

A gate is often used to initiate and sustain an event. In addition to modifying the sound created by other modules and synths being controlled by Etherwave Theremin, consider how the **GATE OUT** may be used to start and stop a sequencer, initiate an arpeggio, and things of that sort.

EXAMPLES OF USING VOLTAGE CONTROL

Here are just a couple of examples of how you can use Etherwave Theremin to enhance or modify other instruments. The gestural control used when playing Etherwave Theremin can enrich nearly any synthesizer session. The possibilities are limited only by your imagination—and, of course, the specifications of each output and input. Explore and seek out new ways to integrate Etherwave Theremin into your rig and into your performance.

CAUTION: Be sure you understand the operating levels of the equipment involved before making connections.

PLAYING SUBSEQUENT 25

This example allows you to explore playing a powerful, dynamic synthesizer using the same types of gestures and controls used to play Etherwave Theremin. First, choose a meaty, sustaining preset on the Subsequent 25. Try a sound voiced in the 16' range.

Now, make your connections:
1. Connect the Etherwave Theremin **PITCH CV OUT** jack to the **PITCH CV** input jack on Subsequent 25.
2. Connect the Etherwave Theremin **VOLUME CV OUT** jack to the **VOL CV** input jack on Subsequent 25.
3. Connect the Etherwave Theremin **GATE OUT** jack to the **KB GATE** input jack on Subsequent 25.

NOTE: *The CV and Gate output jacks of Etherwave Theremin are 3.5mm (1/8") while the CV and Gate input jacks of Subsequent 25 are 1/4", so adapter cables will be needed.*

As you move your left hand away from the Volume Antenna, you should hear Subsequent 25 begin to sound. Move your right hand closer to the Pitch Antenna and hear the Subsequent 25 pitch rise. As you get a little more familiar with controlling Subsequent 25 from Etherwave Theremin, be sure to experiment with other presets as well.

MODIFYING A DFAM PERFORMANCE

This example allows you to use Etherwave Theremin to modify the pattern being played by DFAM (Drummer From Another Mother). In this case, moving your hand near the Pitch Antenna will modify the pitch played at each step, and moving your hand near the Volume Antenna will modify the dynamics of the sequence. Note that in this example, there is no need to connect the **GATE OUT** from Etherwave Theremin, as the DFAM sequencer is gating each step of the pattern.

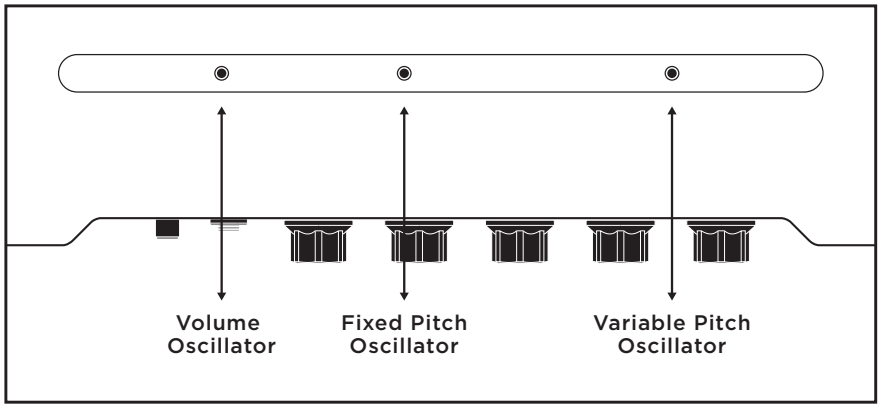
Set up DFAM so that it is playing a rich, steady pattern, with a relatively low starting pitch (DFAM's included "Electro Thump" patch sheet works great).

Pause the playback and make your connections:
1. Connect the Etherwave Theremin **PITCH CV OUT** jack to the **VCO 1 CV** input jack on DFAM.
2. Connect the Etherwave Theremin **VOLUME CV OUT** jack to the **VELOCITY** input jack on DFAM.

Start the DFAM sequencer. As it continues to play, use the Etherwave Theremin to manipulate the playback as you perform. Use your right hand near the Pitch Antenna to modify the pitch; use your left hand near the Volume Antenna to modify the percussiveness of the playback.

TIP: *Explore this setup further by connecting to other CV inputs such as Tempo, VCA Decay, VCF Mod, etc.*

CALIBRATION POINTS



Your Moog Etherwave Theremin is calibrated and ready to play when it arrives from the Moog Music factory. These calibration parameters are controlled by internal trimpots, or trimmers. Access points on the front, top and rear panels allow these trimmers to be adjusted, if the need arises.

WARNING: *Do not attempt to adjust the internal trimpots without first reading and comprehending the information and directions given in the following section. It is possible to render the instrument unplayable by adjusting these circuits without following the instructions. Trimpots or variable inductors damaged by improper tuning are not covered by warranty. Please contact Moog Tech Support with questions regarding calibration.*

TOP PANEL

Etherwave Theremin contains three analog oscillators. One is used for generating a Volume Control signal, and the other two—the Fixed Pitch Oscillator (FPO) and the Variable Pitch Oscillator (VPO)—are used to generate the audible tone you hear through a process known as heterodyning. All of these oscillators are tuned to frequencies well above the range of human hearing. The Volume Oscillator is typically around 515 kHz, and the Pitch Oscillators are typically about 330 kHz.

All of these oscillators are calibrated at the Moog Music factory and there is little need to adjust them; however, for the advanced thereminist, we have included access holes for adjusting the variable inductors for calibrating the instrument's oscillators. To access the three top panel calibration points, remove the plastic insert by simply pulling it up from its edges.

Do not attempt calibration unless you understand the procedure, and once calibrated, do not readjust unless necessary. Please note that the variable inductors are adjusted by turning the cores with the slotted side of the non-conductive adjustment tool provided with your Etherwave Theremin. These variable inductors can be damaged by advancing the internal mechanism too far clockwise or counterclockwise; **only small adjustments are ever required.**

VOLUME OSCILLATOR TUNING

The access hole closest to the Volume Antenna allows control of the tunable core of the variable inductor used to set the frequency of the volume oscillator. The frequency of the volume oscillator determines the slope, or the rate at which the volume response changes as the left hand moves away from the Volume Antenna. The front panel **VOLUME RANGE** knob adjusts the frequency of the Volume Oscillator over a small range. The internal variable inductor can be used to shift the entire volume control range. Turning the variable inductor core counterclockwise will cause the volume control range (articulation) to be faster; turning the variable inductor core clockwise will cause the volume control range (articulation) to be slower. Monitor the audio as you adjust this variable inductor. The audio will sound louder as the core of the variable inductor coil is turned counterclockwise, and quieter as the core is turned clockwise. Turning the core too far counterclockwise will make the volume response unplayable, and too far clockwise will render the instrument silent.

CALIBRATION POINTS *(Continued)*

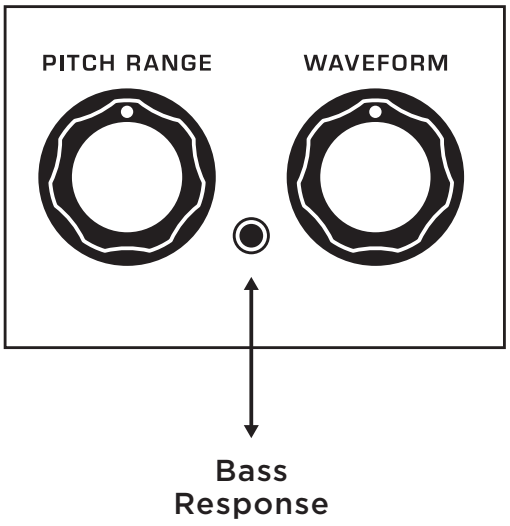
PITCH OSCILLATOR TUNING

Two access points are provided for adjusting the Pitch Oscillators, and are located near the Pitch Antenna. The two Pitch Oscillators are the Fixed Pitch Oscillator (FPO) and the Variable Pitch Oscillator (VPO). The **PITCH RANGE** knob on the front panel changes the frequency of the Fixed Pitch Oscillator by about 2 kHz. The Variable Pitch Oscillator is reduced in frequency as the right hand approaches the Pitch Antenna. At the factory, it is adjusted for approximately a 5 kHz change in frequency from when the right hand is away from the antenna to when it is touching the Pitch Antenna. When the two oscillators are combined, the difference between their respective frequencies is the signal you hear. The original high frequency oscillator signals are filtered out of the audio signal in the process of combining them. The Fixed Pitch Oscillator is tuned so it is at the same frequency as the Variable Pitch Oscillator when the hand is away from the instrument. When the Fixed Pitch Oscillator and the Variable Pitch Oscillator are at the same frequency, the difference between them is zero; this is called "zero beat."

Tuning the instrument with the **PITCH RANGE** knob sets the distance from the Pitch Antenna to the zero beat point. The access point closest to the Pitch Antenna allows control of the VPO to provide more or less pitch range. Before making any adjustments, be sure the **PITCH RANGE** knob is at the center position. By turning the core of the variable inductor clockwise, the playing range is reduced. Small adjustments can have a large effect. It is recommended to use about 1/8 of a turn at a time to adjust, so that you do not get outside of the range of easy adjustment. As you adjust the VPO inductor core clockwise to reduce the playing range, monitor the audio—you will hear the pitch go up drastically. To return to a good playing state, turn the core of the centermost variable inductor clockwise until you hear the pitch go down. When it gets about an octave below Middle C, stop turning the core and try playing the instrument to test the range of playing. To increase the playing range, the direction is reversed, and both inductor cores are turned counterclockwise.

NOTE: *Proceed with caution! Too much range can lead to the resonance of the Pitch Antenna circuit matching the frequency of the VPO, which can lead to unexpected extreme leaps in frequency and an unplayable instrument.* ***As always, do not attempt this adjustment if you are not fully confident in doing so or are unsure of the directions.***

FRONT PANEL



The access point located between the **PITCH RANGE** and **WAVEFORM** knobs allows control of a trimpot that sets the bass response of your Etherwave Theremin. This parameter is set at the factory so that a small amount of coupling between the FPO and VPO occurs. This means at zero beat, the oscillators are lightly locked together. More coupling between the oscillators makes a stronger zero beat, at the expense of the playability of the bass register of the instrument. Less coupling makes the bass register play smoother, but reduces the strength of zero beat. The amount of coupling set at the factory may cause the instrument to break out from the zero beat state if the player walks away from the instrument (in this case the **MUTE** button is a handy function).

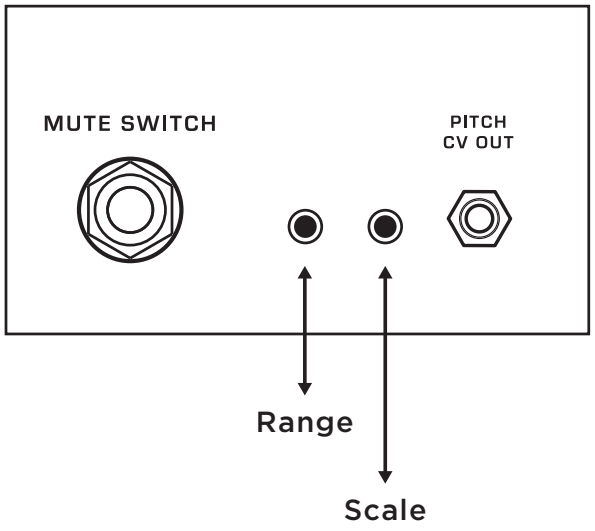
CALIBRATION POINTS *(Continued)*

FRONT PANEL (CONTINUED)

If Etherwave Theremin is to be set up in an installation (or as part of a performance) that requires it to be silent when no one is near the instrument and to make sound as someone walks past, then a stronger coupling is required to create a larger zero beat zone. Gently turn the trimmer potentiometer fully clockwise for this kind of theremin behavior.

If the absolute smoothest bass response is desired, gently turn the trimmer potentiometer fully counterclockwise. In this case the Mute Function can be used to keep Etherwave Theremin silent when the player walks away from the instrument. Please note the coupling adjustment becomes more sensitive as you approach the clockwise direction and less sensitive at counterclockwise.

REAR PANEL



There are two access holes located between the **MUTE SWITCH** jack and the **PITCH CV OUT** jack. These provide access to the two trimpots that control the Pitch to Control Voltage (CV) circuit. The one closest to the **PITCH CV OUT** jack controls the Scale parameter; the one closest to the **MUTE SWITCH** jack controls the Range parameter. These are calibrated at the factory to deliver a 1V/OCT change in theremin frequency, with the C below Middle C generating zero volts. Access to adjustment is offered for those who may need to "fine-tune" their Pitch control setup. Scale adjusts for 1V/OCT, and Range adjusts for the C note one octave below Middle C to output zero volts.

UNDERSTANDING THE SCALE AND RANGE PARAMETERS

To increase the gain of the CV output to provide a value greater than 1V/OCT, gently adjust the Scale control trimpot in the clockwise direction. To decrease the gain of the CV output to provide a value of less than 1V/OCT, gently adjust the Scale control trimpot in the counterclockwise direction. Adjusting the Range control should not ever be necessary; external devices controlled by the Etherwave Theremin **PITCH CV OUT** can be tuned to match the Etherwave Theremin frequency if desired.

SPECIFICATIONS

SOUND SOURCE

ANALOG HETERODYNING OSCILLATOR:
PITCH RANGE knob
WAVEFORM knob
BRIGHTNESS knob

SOUND MODIFIER

ANALOG VCA:
VOLUME RANGE knob

ANTENNAS

PITCH ANTENNA:
Performance Control of the frequency range, from approximately 0 Hz to 4.2 kHz, based on hand proximity.
VOLUME ANTENNA:
Performance Control of the Dynamic range of over 70dB, based on hand proximity.

MUTE BUTTON

ON: (LED Indicator Lit): AUDIO OUT muted; PHONES Out Active
OFF: (LED Indicator Unlit) All Outputs Active (AUDIO OUT, PHONES Out)

HEADPHONES

PHONES: 1/4" output jack
PHONES VOL: PHONES output level knob

POWER

LED indicator (front panel); Button (rear panel)

REAR PANEL

AUDIO: AUDIO OUT
SWITCH: FOOTSWITCH INPUT controls the MUTE function
CV: VOLUME CV OUT; PITCH CV OUT; GATE OUT
POWER: Power Supply connection
POWER BUTTON: ON (LED Indicator Lit); OFF: (LED Indicator Unlit)

DIMENSIONS

SIZE (BODY ONLY W x D x H):
17.9" x 5.8" x 2.8"
45.6 cm x 14.8 cm x 7 cm

SIZE (WITH ANTENNAS W x D x H):
26.7" x 6.6" x 18.7"
68 cm x 16.9 cm x 47.5 cm

WEIGHT: 5 lbs (2.27 kg)

POWER SUPPLY (INCLUDED)

STYLE: Wall adapter; barrel connection; center-pin positive
INPUT: 100 - 240V AC; 50 Hz - 60 Hz
OUTPUT: +12V DC; 2A

POWER CONSUMPTION

TYPICAL: 2.1 Watts

SERVICE AND SUPPORT INFORMATION

MOOG'S STANDARD WARRANTY

Moog warrants its products to be free of defects in materials or workmanship and conforming to specifications at the time of shipment. The Warranty Period is one year from the date of purchase. If, in Moog's determination, it has been more than five years since the product shipped from our factory, it will be at Moog's discretion whether or not to honor the warranty without regard to the date of the purchase. During the Warranty Period, any defective products will be repaired or replaced, at Moog's option, on a return-to-factory basis. This warranty covers defects that Moog determines are no fault of the user.

The Moog Limited Warranty applies to USA purchasers only. Outside the USA the warranty policy and associated service is determined by the laws of the country of purchase and supported by our local authorized distributor. A listing of our authorized distributors is available at www.moogmusic.com/dealers.

If you purchase outside of your country, you can expect to be charged for warranty as well as non-warranty service by the service center in your country.

RETURNING YOUR PRODUCT TO MOOG MUSIC

You must obtain prior approval in the form of an RMA (Return Material Authorization) number from Moog before returning any product. Email techsupport@moogmusic.com for the RMA number or call us at +1 (828) 251-0090. All products must be packed carefully and shipped with the Moog supplied power adapter. Etherwave Theremin must be returned in the original inner packing including the cardboard inserts. The warranty will not be honored if the product is not properly packed. Once you have received the RMA number and carefully packed your Moog Etherwave Theremin, ship the product to Moog Music, Inc. with transportation and insurance charges paid, and be sure to include your return shipping address.

MOOG MUSIC, INC.
160 Broadway St.
Asheville, NC 28801

WHAT WE WILL DO

Once received, we will examine the product for any obvious signs of user abuse or damage as a result of transport. If the product was abused, was damaged in transit, or is out of warranty, we will contact you with an estimate of the repair cost. If warranty work is performed, Moog will ship and insure your product to your United States address free of charge.

HOW TO INITIATE YOUR WARRANTY

Please initiate your warranty online at www.moogmusic.com/register. If you do not have web access, please call +1 (828) 251-0090 to register your product.

CARING FOR YOUR ETHERWAVE THEREMIN

Clean your Etherwave Theremin with a soft, dry cloth only—do not use solvents or abrasive detergents. Heed the safety warnings at the beginning of the manual. Do not drop the unit.

AN IMPORTANT NOTE ABOUT SAFETY: *There are no user serviceable parts inside Etherwave Theremin. Refer all servicing to qualified personnel only.*

Etherwave Theremin User Manual Version 2
For the most up-to-date user manual visit www.moogmusic.com/etherwave-theremin.

Phone: +1 (828) 251-0090 | Email: info@moogmusic.com | Website: www.moogmusic.com

Moog Music is an Employee-Owned Company Located in Asheville, NC