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This is the manual for the KMA Machines ENDGAME with firmware version V2 or higher.

For KMA ENDGAME pedals with the original factory firmware installed (1.04), please click here[https://kma.specs-and-docs.online/kma_endgame_manual_firmware_1__English.htm].

Thank you for purchasing a KMA Machines **ENDGAME** pedal. We hope you get many years of pleasure and use from this device and if this is your first product from our brand, welcome!

While the Quick Start Guide gives a simple guide to operation, this Main User Manual provides detailed instructions for ENDGAME's operation. For maximum understanding and to get the best out the product, it is highly recommended that you read both documents before using the pedal.

The complete electronic version of this Manual is subject to updates. The most recent version is available via the ENDGAME product page at the KMA Machines website: https://kmamachines.com/endgame[https://kmamachines.com/endgame]

1. Safety Instructions

Before using this device, please carefully read and keep in mind the following information.

Retain this document in a safe place, as it is important for the protection of both the user and the product.

Should you suspect any malfunction of the device, always seek the assistance of a qualified technician.

Reader Warning

The triangle with an exclamation mark highlights important messages concerning the correct use of the device.

Power Supply Unit (PSU) Requirements

ENDGAME requires a standard 9 V DC PSU (not supplied) that is capable of providing a minimum of 480 mA with a 2.1 mm Negative Centre polarity. KMA always recommends a good pedal-specific, transformer-isolated power supply unit or multiple isolated-output devices to prevent extraneous noise. Unclean or unregulated power, daisy chains and non-pedal specific power supplies can cause issues. Please verify that the specified voltage required by a connected mains power supply unit matches the mains supply voltage in your country. If not or if you are unsure, do not connect the power supply unit to a mains voltage outlet. Using an incorrect power supply unit could result in damage to the product and/or injuries to the user. This product must not be used when there is atmospheric lightning. In case of severe weather with a risk of lightning, unplug the power supply unit from the mains power and the device to reduce the risk of electric shock and/or fire.

Safe Usage Conditions

The product must never be used near a heat source, near a flame, in the rain, in damp areas or near any kind of liquid. When transporting ENDGAME, care needs to be taken to avoid any physical shocks that could cause physical damage which would require the assistance of a qualified technician.

Cleaning

Always use a dry and soft cloth with no alcohol or solvents for cleaning. Please keep the device clean and free from dust.

Maintenance

All maintenance operations must be done by service centres approved by KMA Machines or by qualified technicians. There are no user serviceable components inside. Never try to repair the unit by yourself.

Contents of the package

The shipped package should contain:

- One ENDGAME in a protective canvas bag
- One Quick-Start guide
- One Warranty Card
- One Swag Sticker

Declaration of conformity

Manufacturer: KMA Audio Machines UG (haftungsbeschränkt) & Co.KG

Tabbertstraße 10-11, 12459 Berlin, Germany

Product: ENDGAME

Responsible person: Enrico Preuss

This product is certified to be compliant to the CE, UKCA and FCC standards:

- General Product Safety Directive 2001/95/EC
- EN 55103-1: 1996 and EN 55103-2: 1996
- EN 60065 05/2002 + A1 05/2006
- EMC directive 89/336/EEC and Low Voltage Directive 73/23/EEC
- FCC Part 15: 2008
- ICES-003: 2004
- IEC: 2008 – CISPR 22 class B

Disposal of WEEE by Users in Private Households within the EU/EEA

This symbol on the product or on its packaging indicates that this product must not be disposed of with your regular household waste. Instead, it is your responsibility to dispose your own waste electrical and electronic equipment (WEEE) by handing it over to a designated collection point for recycling. The separate collection and recycling of WEEE at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your WEEE for recycling, please contact your local city office, your household waste disposal service or the retailer where you purchased the product.

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions:

1. this device may not cause harmful interference, and
2. this device must accept any harmful interference received, including interference that may cause undesired operation.

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2. Warranty

KMA Machines warrants that this product shall be free of defects in parts and workmanship when used under normal operating conditions for a period of two (2) years from the date of purchase. This warranty shall apply to the original purchaser when purchased either directly from the KMA Machines webstore or from an Authorised KMA Machines dealer.

IMPORTANT: PLEASE RETAIN YOUR SALES RECEIPT, AS IT IS YOUR PROOF OF PURCHASE COVERING YOUR LIMITED WARRANTY. ANY LIMITED WARRANTY IS VOID WITHOUT THIS.

This product is also eligible for an extended 5-Year Warranty upon registration via the KMA Machines website:

https://kmamachines.com/product-registration[https://kmamachines.com/product-registration]

Terms and Conditions

The following Terms and conditions apply to the limited 2-Year Factory or Extended 5-Year Warranty:

Your product is covered as long as faults are not caused by any form of abuse or neglect. Using a wrongly rated power supply, modifying the circuit in any way or any other mishandling etc. is not covered. Warranty also does not apply to normal wear and tear of the graphics, knobs, switches, sockets or enclosure.

The following Terms and conditions apply to the Extended 5-Year Warranty:

Your details may be kept on file and used by KMA Machines for direct marketing purposes and for possible future offers. This information will not be given to third parties. If you do not wish to be contacted in the future (apart from in relation to this offer) please email us at marketing@kma-machines.com. You can unsubscribe from KMA Machines emails at any time by clicking the unsubscribe link in any emails sent to you.

KMA Machines reserves the right to modify or withdraw this Extended 5-Year Warranty promotion at any time.

By registering for the Extended 5-Year Warranty, you agree to accept the above terms and conditions.

KMA MACHINES ASSUMES NO LIABILITY FOR PROPERTY DAMAGE RESULTING FROM ANY FAILURE OF THIS PRODUCT NOR ANY LOSS OF INCOME, SATISFACTION, OR DAMAGES ARISING FROM THE LOSS OF USE OF SAME DUE TO DEFECTS OR AVAILABILITY OF SAME DURING SERVICE.

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3. Technical Support

3.1 Help and Advice

At KMA Machines, we pride ourselves on our quality. Despite not being designed for swimming, firing up in the air or generally flying around, even if they do land “softly”, our machines are built to last and resist the daily routine of touring. However, from time to time we do realise, like with all electronics, things can go wrong, no matter how carefully you treat them.

On average, 70-80% of all pedals sent into us for service are actually fully functional and most issues are caused by faulty cables, your instrument, a bad power supply unit or something else we cannot recreate in our service department.

Most issues usually can also be resolved by reviewing our FAQ and User Manuals with common troubleshooting tips, but if you can’t find the answer you are looking for (or if you need technical assistance or service after purchase) please do get in touch with our service team via the form available on our website.

3.2 Service / Repairs

If under warranty, and in the unlikely event of having any issues with your KMA product, depending on the local laws where you live, we would suggest in the first instance to please contact the dealer you purchased it from.

Alternatively, you can get in touch with us using this form on our website and we will open a service case for you:

https://kmamachines.com/support-service[https://kmamachines.com/support-service]

For products outside of our warranty etc. we are also happy to quote for repairs.

If required, you will need to send the device back to us. We will repair/replace as required and return – you just have to pay the return shipping fee. Once the process has started, we may ask for proof of purchase if claiming warranty service or additional fault details to ascertain in more detail what the fault could be etc.

KMA Audio Machines

Tabbertstraße 10-11
12459 Berlin
Germany

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4. About ENDGAME

4.1 Introduction

The KMA Machines ENDGAME is a complete and comprehensive solution for the end of your signal chain.

With its integrated Stereo FX loop, KMA's proprietary True Double-Tracker, a DUAL mono Impulse Response loader, Auxiliary Input (also via Bluetooth) and extensive routing options, the ENDGAME is a flexible and useful utility device for all sorts of musical situations.

4.2 Product Highlights

- The complete final stage of your signal chain
- Foot-switchable Stereo Effects Loop
- Dual Cabinet Simulation (DROAC Impulse Response Loader with 3 Celestion® Digital Powered Presets and 2 User slots)
- Ambience Control – for room simulation
- Foot-switchable True Double-Tracker (Proprietary Doubler) with Width Control
- Switchable Tube Power Amp Simulation (6L6/EL34/KT88)
- Flexible internal signal routing
- Premium Analog, high-headroom input, with high-impedance circuitry
- Variable Input level (+/-24 dB of gain/reduction) catering to direct instrument or line level devices
- Input Direct Thru connection
- Aux Input – Bluetooth Audio or 3.5 mm TRS, with Aux/Main Mix/Blend Control
- Dual Headphone Outputs, with dedicated level control
- Stereo Fully Balanced XLR DI Outputs, with ground lift and Variable Level Control (Mic/ Instrument/ +4 dBu)
- Stereo 6.35 mm Balanced TRS outputs
- USB-C for loading user Impulse Responses and software updates
- True Bypass silent relay-based soft switching
- 32 Bit internal processing
- Support for 44.1, 48, 88.2 and 96 kHz IR sample rates *(requires Firmware V2 or later to be installed)
- Powered by regular 9V DC power supply unit (<480 mA)

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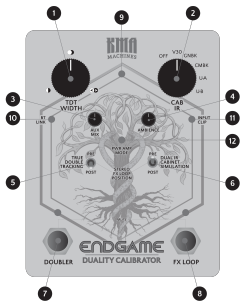
5. Panel Descriptions

5.1 Front Panel



1 – TDT WIDTH Control

Use the **TDT Width**(Stereo True Double Tracking Doubler) control to spread your doubled signal anywhere from (1) completely centred, (2) left and right and (3) 100% left and right split.

For more information, see the "WIDTH Control" section.

2 – CAB IR Control

Use the 6-way **CAB IR** switch to select the *Dual Impulse Response Cabinet Simulation* type.

For more information, see the "CAB IR Selector" section.

3 – AUX MIX Control

Use the **AUX MIX** control to set the Level/Mix of the Auxiliary Input from either the 3.5 mm Analog or Bluetooth® inputs.

For more information, see the "Aux Mix" section.

4 – AMBIENCE Control

From completely dry all the way to a lush space, the **AMBIENCE** control sets the level and size of the built-in Room Simulator.

For more information, see the "Ambience" section.

5 – TRUE DOUBLE TRACKING Toggle (TDT FX Loop Position)

Use the **TRUE DOUBLE TRACKING** toggle to move the Stereo FX Loop before (**PRE** setting) or after (**POST**setting) the True Double Tracking Doubler.

For more information, see the "FX Loop Position" section.

6 – DUAL IR CABINET SIMULATION Toggle (CAB IR FX Loop Position)

Use the **DUAL IR CABINET SIMULATION** toggle to move the Stereo FX Loop before (**PRE**setting) or after (**POST**setting) the Dual Impulse Response Cabinet Simulation.

For more information, see the "FX Loop Position" section.

7 – DOUBLER Foot-switch

Activates/Deactivates the Stereo True Double-Tracking Doubler.

The Blue LED above the switch indicates when active.

8 – FX LOOP Foot-switch

Use the **FX LOOP** Foot-switch to activate/deactivate the Buffered Serial Stereo FX Loop.

The Blue LED above the switch indicates when active.

Note: Holding down **both** Foot-switches for approximately 1 second activates the MUTE function, no audio signal will pass to the XLR or TS/TRS Outputs and both LEDs will flash slowly.

To UNMUTE, push either switch.

9 – Main LED

A steady green LED indicates that ENDGAME is powered and functioning normally.

10 – BT LINK Link

A blue **BT** LED indicates ENDGAME's Bluetooth® status.

For more information, see the "Aux Input (Bluetooth)" section.

11 – INPUT CLIP LED

A red **INPUT CLIP** LED indicates if clipping is present via the INPUT or the **Stereo FX LOOP** returns.

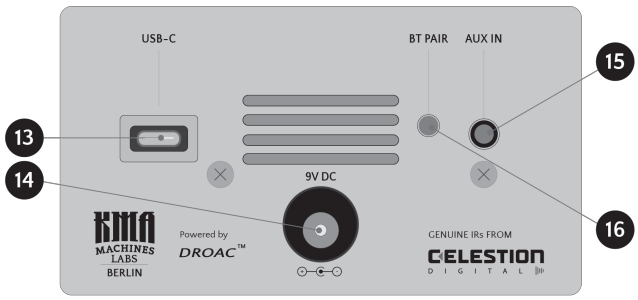
For more information, see the "Setting Levels" section.

12 – PWR AMP MODE LED

The colour of the **PWR AMP MODE** LED indicates the currently selected Power Amp Simulation model.

For more information, see the "Power Amp Mode" section.

5.2 Top Panel



13 – USB-C Port

Use the **USB-C** port to connect ENDGAME to a PC or Mac for loading user Impulse Responses and Software Updates.

14 – 9V DC input

Connect a standard 9 V DC power supply unit (not supplied) to the **9V DC** input. The power supply unit must provide a minimum of 480 mA at 2.1 mm negative center polarity.

KMA recommends that you always use a good pedal-specific transformer isolated power supply or multiple isolated output devices to eliminate noise. Unclean or unregulated power, daisy chaining, and non-pedal specific power supplies can cause issues.

15 – AUX IN jack (Auxiliary Signal Input)

Use the **AUX IN** 3.5 mm TRS jack to connect a stereo analog audio signal source to ENDGAME.

For more information, see the “Aux Input” section.

16 – BT PAIR button

The **BT PAIR** button allows you to pair ENDGAME with a Bluetooth® audio device for audio streaming, substituting the analog **AUX IN** connection.

For more information, see the “Aux Input (Bluetooth)” section.

5.3 Left Side Panel

17 – DUAL HEADPHONE Outputs

You can use the two **DUAL HEADPHONE** 3.5 mm mini TRS outputs to connect two separate headphones to ENDGAME.

These dual outputs allow to you share your completed mix with another musician, or you can use for IEM (In Ear Monitoring), either wired or via a stereo wireless IEM system.

The level knob between the two **DUAL HEADPHONE** outputs adjusts the volume of both outputs simultaneously.

18 – FULLY BALANCED OUTPUT Jacks

Connect two XLR connectors to the **FULLY BALANCED OUTPUT** jacks to send the ENDGAME's stereo main mix (Left/Right) to the Front-of-House/PA system, to FRFR cabinets, a recording system etc.

Use the **XLR OUTPUT LEVEL** control to adjust the output level from Mic Level/-60 dBu (Fully left / counter-clockwise position) all the way up to professional +4 dBu (Fully right / clockwise position).

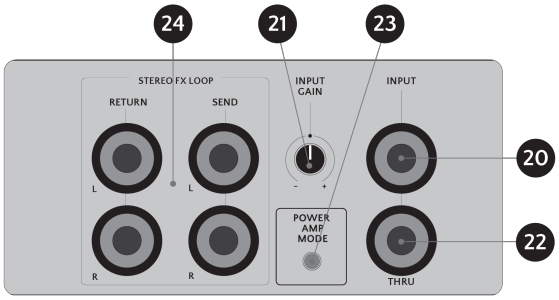
To help alleviate situations where you may encounter hum, the internal Ground Lift can assist when connecting to other devices or if you encounter grounding loops etc.

If the **GND LIFT** switch is depressed, Ground Lift is activated.

19 – TS/TRS LINE OUT Jacks

The two **TS/TRS LINE OUT** jacks output ENDGAME's complete Stereo Main Mix (Left/Right) at Line Level.

5.4 Right Side Panel



20 – INPUTJack

Connect the last mono device in your signal chain to the 6.35 mm **INPUT** jack. This is typically your preamp, modulation pedal, mono cab sim etc. or your source instrument (guitar, bass or other).

21 – INPUT GAIN Control

The **INPUT GAIN** control with its premium high impedance circuitry can provide up to +/-24 dB of gain/reduction.

Use the **INPUT GAIN** control to reduce the gain if the red **INPUT CLIP** LED (11) is illuminated.

For more information, see the "Setting Levels" section.

22 – THRU Jack

The **THRU** jack outputs the INPUT signal in parallel.

This extra connection is useful for a multitude of situations e.g. for an amp, tuner output, separate channel etc. or for recording the dry unprocessed signal into a DAW for post processing.

23 – POWER AMP MODE button

The **POWER AMP MODE** push button toggles between the three available Power Amp Models and Off/Bypass.

The colour of the front panel **PWR AMP MODE** LED indicates the currently selected Power Amp Simulation model.

For more information, see the "Power Amp Mode" section.

24 – STEREO FX LOOP Send/Return Jacks

Insert Stereo devices using the respective **L** (Left) and **R** (Right) jacks of the **STEREO FX LOOP** section. The FX Loop is enabled/disabled with the FX LOOP Foot-switch (8) on the front panel.

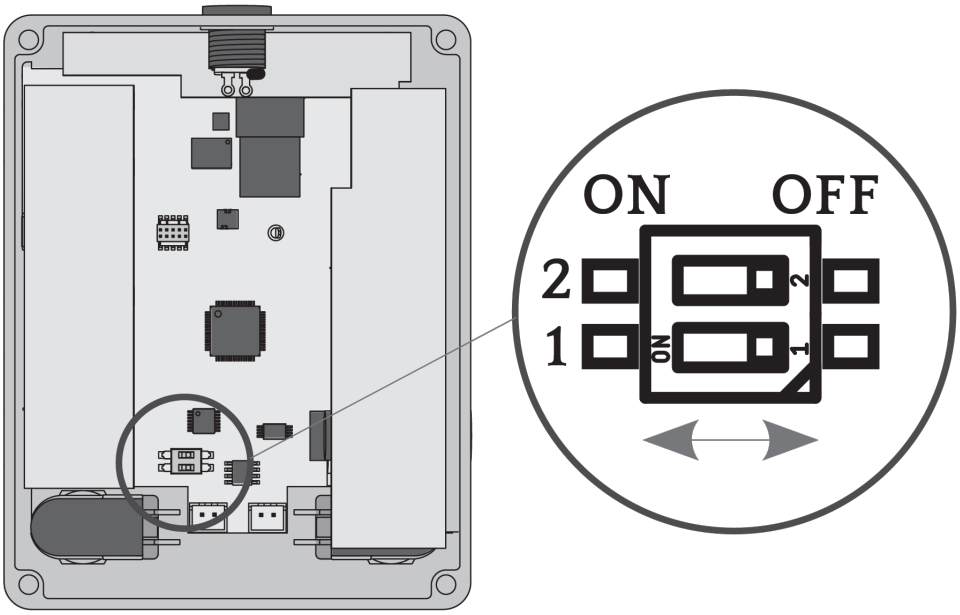
Use the **TRUE DOUBLE TRACKING** and **DUAL IR CABINET SIMULATION** toggles o set the PRE/POST position of the FX Loop within ENDGAME's signal chain.

For more information, see the “Stereo FX Loop” section.

5.5 Internal DIP Switches

For extended monitoring flexibility, there are two mini–DIP switches within the ENDGAME to control various monitoring options.

These are located on ENDGAME's main circuit board (PCB) as shown here:



ENDGAME Internal DIP Switches

Note: To access these DIP switches, remove the four screws that attach the rear plate to the main body of the pedal. Be extremely careful when opening the device and reattaching the plate as not to snag or disturb any cables, components etc. on the various internal PCBs. **Apart from these DIP switches, no other user serviceable parts are inside and any further adjustments to any other component inside may damage the product, which will void your warranty.**

Switch 1 – AUX BYPASS

Switch **1** disables the AUX INPUT (Analog or Bluetooth) from being passed to the Main XLR/TRS Outputs.

This can be very useful for IEM and many other scenarios.

Switch **1** set to **ON**

> The AUX IN signal is sent to the Headphone outputs and both the XLR and TRS outputs simultaneously.

Switch **1** set to **OFF**

> The AUX IN signal is sent to the Headphone outputs only.

For more information, see the "In Ear Monitoring Magic" section.

Switch 2 – Impulse Response / Amp Simulation Bypass

Switch **2** disables Ambience, Cab Impulse Response and Power Amp Simulations from the TS/TRS Outputs. This is perfect for monitoring using regular guitar amps on stage while sending the full mix to IEM/Headphone and XLR Outputs.

Regardless of the position of Switch **2**, the full mix is always sent to the Headphone Outputs.

Switch **2** set to **ON**

> Ambience, Cab Impulse Response and Power Amp Simulations are sent to both the XLR and TS/TRS Outputs.

Switch **2** set to **OFF**

> Ambience, Cab Impulse Response and Power Amp Simulations are sent to the XLR outputs only.

For more information, see the "Multi Monitoring" section.

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6. Setting Levels

Stetting the optimum levels of any audio device, otherwise known as Gain Staging, will always give you the best overall experience. Within ENDGAME, the main **INPUT GAIN** control with its premium high impedance circuitry can provide up to +/-24 dB of gain/reduction.

When setting up your external gear with ENDGAME, it is advisable to take some time to ensure that volume levels for each device in your signal chain are set up correctly.

With the FX Loop turned *off,* start by establishing a correct level at the input, using the **INPUT GAIN** control. make sure that your loudest possible input signal (from e.g. Distortion, Overdrive, Fuzz, Octave, Synth, Boost, Compressor or any other device before the main input) is not causing the red **INPUT CLIP** LED to illuminate. If the **INPUT CLIP** LED *does* light up, reduce the **INPUT GAIN** control until the LED is no longer active.

Following this procedure, enable the FX Loop and then work to ensure that your Stereo effects in their loudest settings are also not causing the **INPUT CLIP** LED to illuminate. Some stereo effect units can add gain to signals, dependent on the effect used and their individual settings.

Essentially the goal is to ensure that gain staging is set for optimal usage of all devices within the signal chain, to get the best out of them and your rig.

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7. Stereo True Double Tracking Doubler

Doubling guitars is a common practice in a wide variety of musical genres. In the majority of cases, a single guitarist will record the same (mono) track twice, with one track being panned to the left channel and the other to the right channel. The effect of this is unmistakable to the ear and the slight differences and nuances between the two separate performances complement each other, helping to create a noticeable thickness, density and weight to the musical experience.

Please be aware that this effect is not the same as simple doublers (that just delay one side of the signal and introduce modulation) or other ADT type solutions that are available on the market today. KMA has carried out extensive research on how to make double tracking sound exactly how we believe it should perform. We've spent thousands of man hours developing our own proprietary solution, even designing our own custom neural network AI with onset detection in the process.

Enabled via the Foot-switch, KMA's True Double Tracking Doubler accurately replicates the minor differences that could exist within two separate recordings and the width can spread your doubled tracks anywhere from completely centred to 50% left and right and 100% left and right split.

7.1 WIDTH Control

Although we give the option to narrow or widen the effect with the TDT WIDTH control, we think that most players will opt to keep it at 100%. This will give the best emulation of authentic double tracking. While many may prefer to continue going through this process authentically during the recording process, ENDGAME allows this highly impactful effect to be replicated both live and during practice, maximising audible impact as well as fuelling creative inspiration.

Besides the 100% WIDTH setting, other areas within the range of this control increase your creative options, with the doubler becoming a very useable and unique effect in a range of musical contexts.

To set the WIDTH, turn the control as follows:

- Fully Left (CCW): Mono/Centred (0%)
- Centre Indent: Stereo (50% left and right)
- Fully Right (CW): Stereo Wide Split (100% left and right)

Notes:

While for the most accurate performance (and just like in a real studio double tracking scenario in the studio), our custom True Double Tracker algorithm should ideally be fed with a mono signal.

In other words, this should be before the Stereo FX Loop, thus setting the Toggle on the front panel to PRE – see 9.1 FX LOOP POSITION. Having said that, our TDT algorithm has been optimised to still have a useful and very pleasing widening effect on stereo signals, so see what works best for your tonal preferences.

7.2 Additional True Double Tracking functions

(V2 Firmware and above)

While we designed our dead-simple-to-use, yet custom AI driven True Double Tracker Algorithm to be as authentic to the studio doubling tracking recording process as possible, for those using the TDT post FX Loop or simply wanting more control, there are a couple of hidden features to help tailor the TDT algorithm to your own taste.

Doubling Timing

This affects the onset detection timing (or tightness) of the AI-driven doubled signal.

To adjust, press and hold the DOUBLING Foot-switch while turning the TDT WIDTH knob. Turn left (CCW) for tighter timing, right (CW) for looser timing. Centre Detent is ENDGAME's default factory position. Once you've found your preferred setting, release the DOUBLING Foot-switch and the Doubling Timing will be stored. The TDT WIDTH knob will return to its normal function after this process.

Doubling Level

This affects the level of the Doubled signal against the original source.

To adjust, press and hold the FX LOOP Foot-switch while turning the TDT WIDTH knob. Turn left (CCW) for less doubled signal, right (CW) for more. Centre detent is ENDGAME's default factory position. Once you've found your preferred setting, release the release the FX LOOP Foot-switch and the Level will be set. The TDT WIDTH knob will return to its normal function after this process.

Notes:

These functions require V2 (or higher) of the ENDGAME's firmware to be installed.

Timing and Level settings are stored in ENDGAME once set and the relevant Foot-switch is released.

The TDT WIDTH knob physical position will not dictate the Doubler Width until the previously selected position is passed through.

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8. Dual Cabinet Impulse Response, Power Amp Simulation and Ambience

The built-in Dual Cab Sim Impulse Response Loader is KMA's own simple, yet flexible and unassumingly powerful convolution cabinet simulation solution, designed to suit a multitude of musical circumstances. For this, we developed a new technology we call "Dynamic Responsive Onset AI Convolution" or DROAC™ for short.

Many other devices on the market today can potentially lead you down the path of option paralysis, so we decided to just keep ENDGAME intuitive and immediate. Our aim is to help you focus on creating rather than constantly adjusting, as in our experience once you've found your ideal cabinet tones, it's generally preferable to stick with these favourites. However, unlike a number of alternatives out there, if you do want to experiment, we added an OFF mode. This means you can still use your existing favourite of the plethora of great simulation devices that are available, while still experiencing the unique and super useful ENDGAME features – the choice is yours!

The 3 main onboard presets are based on KMA's own choices and are based on popular, standard examples that will fit a majority of situations. These Genuine Dynamic Impulse Responses are powered by industry leading speaker brand Celestion®, for the most authentic tone possible and curated specifically for their own "Magnificent 7 Collection". Each included Impulse Response is a custom blend by Celestion®, created with the help of multi-platinum Engineer/Producer Mike Spink at Decoy Studios, a world class live room which is the professional home of award-winning mixing engineer Cenzo Townshend. All of the included Impulse Responses are a mix between 3 industry standard microphones (Royer R-121, Sennheiser MD421 and Shure SM57), optimised to either high or low gain settings.

Positions UA and UB are completely user definable. There are a multitude of third-party Impulse Responses out there which can be loaded into ENDGAME's internal storage simply using a USB-C cable connected to your host device (see section 7.2)

Why "Dual"? Well as the ENDGAME is a stereo device, what goes into the Left side of the Cab Simulation stays in the Left output (and vice versa relating to the Right side). However, what if you desire a totally different speaker cab to the other on one side of your stereo signal? Well, we thought of that, as you can easily do this via the custom loader simply by placing different Impulse Responses in each corresponding folder. From the factory, we've pre-loaded these slots with examples/combinations of our various cabinet choices on each side, but loading your own Impulse Response cabinets in these user slots is a breeze!

In addition, the separately selectable Tube Power Amp Simulator and Ambience features add another sense of realism to polish up your tone.

8.1 CAB IR Selector

Using the **CAB IR** rotary switch on the front panel, you can quickly and easily select from 6 different Cabinet settings.

OFF setting

> The **Off** setting completely bypasses the Impulse Response Loader allowing the ENDGAME to be used with a variety of other mono amp / cabinet simulators via the mono Input, Stereo FX Return or for processing other signals which don't require cabinet simulation.

V30 setting

> Use the **V30** setting to simulate a 4x12 closed-back cabinet equipped with Vintage 30s, optimised for High Gain.
>
> "A superbly versatile speaker that has found a home delivering a generous range of metal and rock tones with tight bass, rich and vocal mid-range and an intricately detailed top end. Clean tones are crisp and that famous upper midrange sits just right in the mix."

GNBK setting

> Use the **GNBK** setting to simulate a 4x12 closed-back cabinet equipped with Greenbacks, optimised for High Gain.
>
> "The G12M-65 is a modern incarnation of the speaker that helped define rock tone; played by legends like Clapton, Page and Beck. Expect a broad mid-range attack and a restrained top-end with added grit and aggression".

CMBK setting

> Use the **GMBK** setting to simulate a 4x12 closed-back cabinet equipped with Creambacks, optimised for Low Gain.
>
> "The G12H-75 is a speaker with added power and with a heavier magnet that enables the production of a tight bass with impactful highs, adding awesome thickness to single notes".

UA setting (User Slot A)

> ENDGAME has two storage slots for adding your own Impulse Responses. From the factory, User Slot A (**U·A**) is loaded with G12M-65 (Left) and V30 (Right).

UB setting (User Slot B)

> From the factory, User Slot A (**U·A**) is loaded with G12H-75 (left) and G12M-65 (right).

The **UA** and **UB**slots will default to the factory settings when no other Impulse Responses are present in the respective mass storage device's folder structure. For more information, see the "Impulse Response Loading" section.

8.2 Impulse Response Loading

Third-party Impulse Responses can be loaded into the ENDGAME's User Slots via the USB-C connector. These Impulse Responses can then be accessed using the **UA** and **UB** positions on the **CAB IR** rotary control.

To load your own choice of IRs into these User Slots, all you require is a Mac (running macOS 10.13 or later) or a PC (running Windows 10 or later) and a relevant cable to connect ENDGAME to your computer.

Please follow this procedure to load Impulse Responses into the ENDGAME's User Slots:

1. Connect the ENDGAME to your Mac or PC using a standard USB-C cable.
2. The ENDGAME should appear on your host device as a mass storage device (external drive etc).
3. Simply drag and drop the required Impulse Response file into the relevant folder. The folder structure denotes Left and Right within UA and UB. Drag and Drop either the same Impulse Response file into both the Left and Right folders or use different Impulse Responses for Left and Right if so desired.
4. When no Impulse Response exists in a folder, the ENDGAME will load the factory preset Impulse Responses by default.

While the ENDGAME is a plug and play class compliant USB device, we highly recommend that you unmount (Mac)/ Eject (Windows) the mass storage device/drive before unplugging it from your computer. This will help to prevent any connection errors or data loss when reconnecting.

Notes: ENDGAME's architecture allows for MONO .wav Impulse Response files specified up to a maximum of 96 kHz / 500 ms. Any lower sample rate or length will be upscaled as part of the convolution loading process.

Support for 44.1, 48, 88.2 and 96 kHz sample rates requires Firmware V2 (or later) to be installed.

WARNING: Do not load any other file standard other than PCM .wav IR files at 44.1, 48, 88.2 or 96 kHz into ENDGAME, as this may give unpredictable results.

8.3 Power Amp Mode

Power amps can make a fundamental difference to your tone. ENDGAME's integrated Tube Power Amp Simulator is designed to replicate the overall tonal characteristics of the most common type of tube amps to give the "right" amount of sag and compression.

Simply push the **POWER AMP MODE** button on the right-hand side of the pedal to toggle between the 3 Power Amp Models and Bypassed.

The colour of the front panel **PWR AMP MODE** LED pedal indicates what mode is selected:

PWR AMP MODE LED *green*

EL34 selected

PWR AMP MODE LED *red*

6L6 selected

PWR AMP MODE LED *orange*

KT88 selected

PWR AMP MODE LED *Blank/unlit*

Off/Bypass

Note: ENDGAME's Tube Power Amp Simulator always comes *before* the Dual Cab Impulse Response in the signal flow. For more information, see the "Internal Signal Routing" section.

8.4 Ambience

We have added a simple yet effective Ambience feature to the Impulse Response section.

With some Impulse Responses (IR), the feel you can get is that the tone not as lifelike as it could be. This often becomes even more prominent when using headphones, where it can seem like the captured virtual cabinet is almost right inside the centre of your head. The **Ambience** control allows you to simply adjust the level of natural room ambience to counteract this effect.

Essentially, it's a little like having an extra couple of microphones to capture the reflections from the room in which the virtual cabinet is placed – just like many creative studio engineers have done on countless classic recordings. Variable from completely dry/off, adding a sense of space that's suitable for most styles of playing and right up to a larger expanse, this feature will help to set the size of the stage for your tone.

To set the Ambience level, turn the control as follows:

AMBIENCE control fully counter-clockwise / left

> Ambience is Off (dry signal).

AMBIENCE control at centre indent (12 o'clock position)

> Ambience that is representative of a medium-sized room.

AMBIENCE control fully clockwise / right

> A lush and even more spacious effect.

Note: ENDGAME's Ambience always comes *after* the Dual Cab Impulse Response in the signal flow. For more information, see the "Internal Signal Routing" section.

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9. Stereo FX Loop

Integrating stereo effects into your signal chain is a common challenge for many guitarists. Without the luxury of 2 amplifiers (or the ability to turn them up if you have them) or for owners of cabinets simulators that are usually mono by design, ENDGAME offers an easy to integrate and distinctive solution to this challenge.

For the sake of long cable runs and to maximise signal clarity, ENDGAME's serial Stereo FX Loop is buffered. This means you can now hear your stereo pedals and other effects in their true pristine glory.

Connect the Left and Right Sends on the (Right Panel) to the Left and Right Inputs on your stereo device and connect the Left and Right Returns on ENDGAME to the Left and Right Outputs on your stereo device.

You can quickly switch the loop on or off via the convenient soft footswitch.

9.1 FX Loop Position

When the FX LOOP is activated, the two switches on the front panel change the signal routing.

For the ultimate in creative flexibility, the entire CAB Impulse Response Loader, Power Amp Simulation and Ambience block can be positioned pre or post FX Loop using the **DUAL IR CABINET SIMULATION** PRE/POST toggle switch. In addition, the same flexibility is available for the True Double Tracker circuit using the **TRUE DOUBLE TRACKING** toggle switch.

For example, many audio engineers traditionally apply stereo effects (usually reverb and delay) after the cabinet in the recording signal chain so the clarity of the effects can be achieved as cleanly as possible. This is even more the case when using double tracking etc. so that the carefully constructed doubled extra weight you have added to your tone doesn't turn into mush.

However it all depends on your tonal desires – which is why we gave the flexibility here for different connection scenarios- Choose what sounds best to you!

To see the routing in detail, check out the signal flow diagram in the "Internal Signal Routing" section.

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10. Aux Connectivity

Placed directly before the Main Outputs in the signal flow, the AUX INPUT is an excellent solution for feeding a backing track or any other stereo signal into the outputs of the ENDGAME and making it perfect for many purposes, including practicing.

In addition to the analog mini stereo 3.5mm jack, we have added a Bluetooth® connection for audio streaming. This means you can hook up many of today's devices – such as phones, tablets, computers and the like – to use ENDGAME's high quality XLR, TS/TRS and Dual Headphone outputs for playing music and more.

10.1 Aux Input (Mini TRS)

To connect an auxiliary audio device to ENDGAME (for the purpose of baking tracks, instruments such as drum machines or any other external audio device monitoring), proceed as follows:

1. Connect the stereo output of your device to ENDGAME's **AUX IN** 3.5 mm Mini TRS input. Your device should now be able to play audio through the respective outputs of the ENDGAME.
2. Adjust the **AUX MIX** control on the top panel to adjust/blend the external audio level in balance to ENDGAME's signal. For more information, see the "Aux Mix" section.
   Please ensure that your external device is providing sufficient level to the ENDGAME before adjusting the control.

10.2 Aux Input (Bluetooth)

To activate Bluetooth® Pairing Mode and connect a device to stream audio to ENDGAME, proceed as follows:

1. Press the **BT PAIR** button on the ENDGAME for approximately 4 seconds until the **BT LINK** LED on the front panel flashes.
2. In your device's Bluetooth® audio paring settings, choose "KMA ENDGAME" as the device. The **BT LINK** LED will turn solid once a connection has been established. Your device should now be able to stream Bluetooth audio through the relevant outputs of the ENDGAME*.
3. Adjust the **AUX MIX** control on the top panel to adjust/blend the external audio level in balance to ENDGAME's signal. For more information, see the "Aux Mix" section. Please ensure that your external device is providing sufficient level to the ENDGAME before adjusting the control.

Note: An active paired Bluetooth® connection will override any analog device connected to the AUX IN. To disconnect and unpair your Bluetooth device, push and hold the **BT PAIR** button until the **BT LINK** LED is no longer illuminated.

As with all Bluetooth® devices, any audio connections using this connection method will add latency/delay to the signal. This is of no consequence for *static* backing tracks, recorded music and the like. However, for *real-time* audio signals that should be processed without latency, we suggest that you use the regular analog **AUX IN** jack.

10.3 Aux Mix

To set the levels/balance of your selected auxiliary source, adjust the **AUX MIX** control as follows:

AUX MIX control fully counter-clockwise / left

ENDGAME's internal signal is 100% and the AUX signal is muted.

AUX MIX control at centre indent (12 o'clock position)

ENDGAME's internal signal and the AUX signal are 50/50 equal.

AUX MIX control fully clockwise / right

The AUX signal is 100% and ENDGAME's internal signal is muted.

Which outputs are active depends on ENDGAME's Internal Dip Switch settings. For more information, see "Switch 1 – AUX BYPASS" in the "Internal DIP Switches" section.

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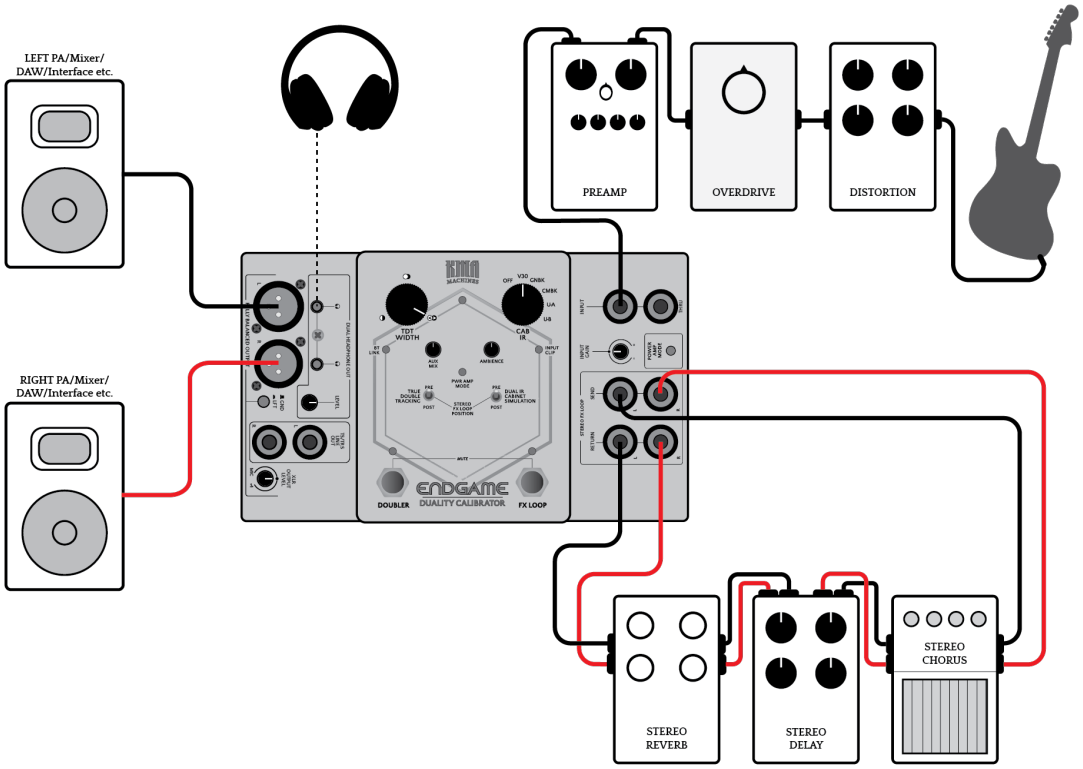
11. ENDGAME Setup Suggestions

ENDGAME has been engineered to work in a huge variety of setup scenarios.

There is a massive amount of all sorts of excellent effects out there, so it pays to experiment in your pedal order to achieve your exact tonal requirements and how to best assemble your dream rig. There is no right or wrong way. However, the following setup examples should help get you started and help you to achieve a great sound as fast as possible.

11.1 Dream Fly Rig

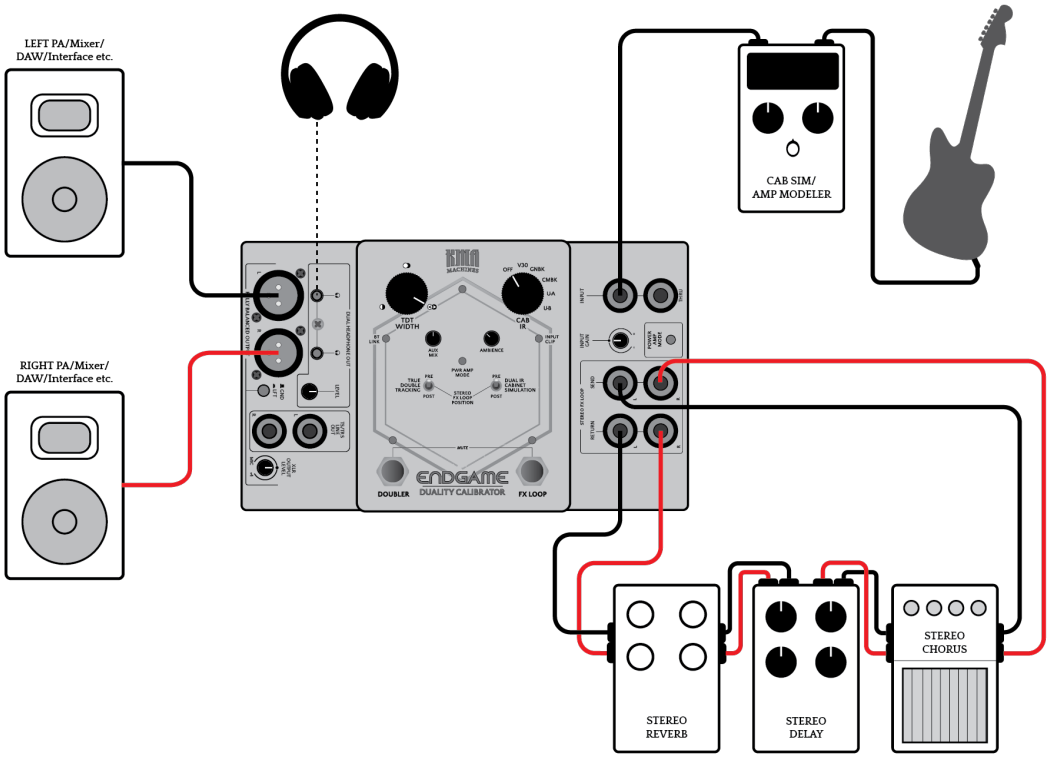


KMA ENDGAME Setup example: Dream Fly Rig

1. Connect your instrument to your favourite drive and other mono pedals, then choose your preamp of choice from the multitude of great examples available on the market today and connect that into the input socket.
2. Use ENDGAME's built in Cabinet Simulations (or your own user defined Impulse Responses) with ENDGAME's Power AMP Simulation and connect that directly to the PA.
3. Add some stereo effects in the Stereo FX Loop and you have a complete portable solution which can be highly flexible and with a feature set beyond the capabilities of many heavy combos, amplifiers and cabinets.

Tone Tip: Many mono preamps also can have cabinet and power amp simulation built in. If your device provides the option to turn on / off their internal cab and power amp modelling etc., this can give you the additional option of using these or the options within ENDGAME. Remember though that if you do use external cab and power amp simulation, for the best results you will need to ensure that these options are turned off on ENDGAME, in order that you are not duplicating the simulations. For this setup, we also recommend that both FX Loop Position toggles switches are set to **PRE**.

11.2 Potential Maximiser



KMA ENDGAME Setup example: Potential Maximiser

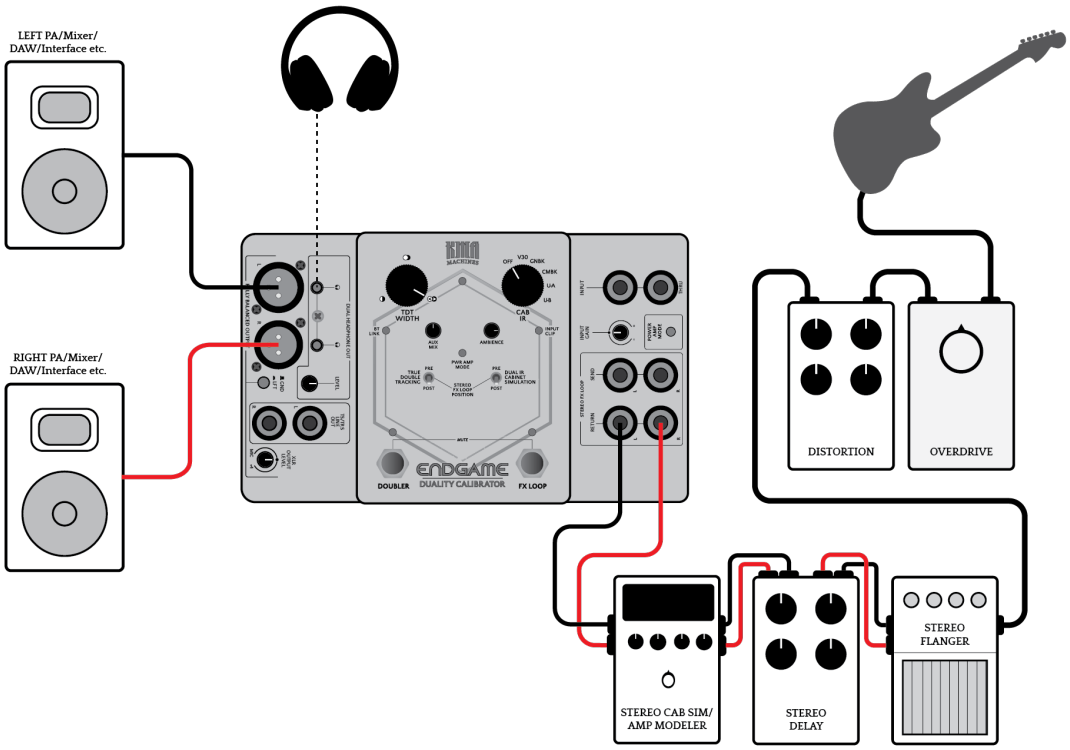
There are several Amp Modellers/ Cabinet Simulators on the market that are highly detailed products with extensive options which are highly customisable via their user interfaces.

Depending on your own personal preference, you can decide whether to use the Celestion® Cabinet Impulse Responses that are included in ENDGAME or use your preferred existing simulation device. In that case, run your device into the ENDGAME's input.

This allows you to use all of the secondary device's features, while the ENDGAME compliments these with a more comprehensive set of IO, the TDT Stereo Doubler, the ability to add stereo effects via the FX loop, Bluetooth, Dual Headphone outputs or all of these at once.

Tone Tip: Traditionally, stereo effects are often added after the guitar preamp, power amp and speaker when mixing or recording. Sending a "finished" mono signal into the ENDGAME enables you to create a virtual "mix bus" on your pedal board by adding doubling, then stereo effects to this setup and complimenting it in the same way as an engineer may do when mixing a recorded guitar "group". Remember though that if you do use external cab and power amp simulation, for the best results you will need to ensure that these options are turned off on ENDGAME, in order that you are not duplicating the simulations. For this setup, we recommend that both FX LOOP POSITION toggles switches are set to **PRE**.

11.3 Stereo Input



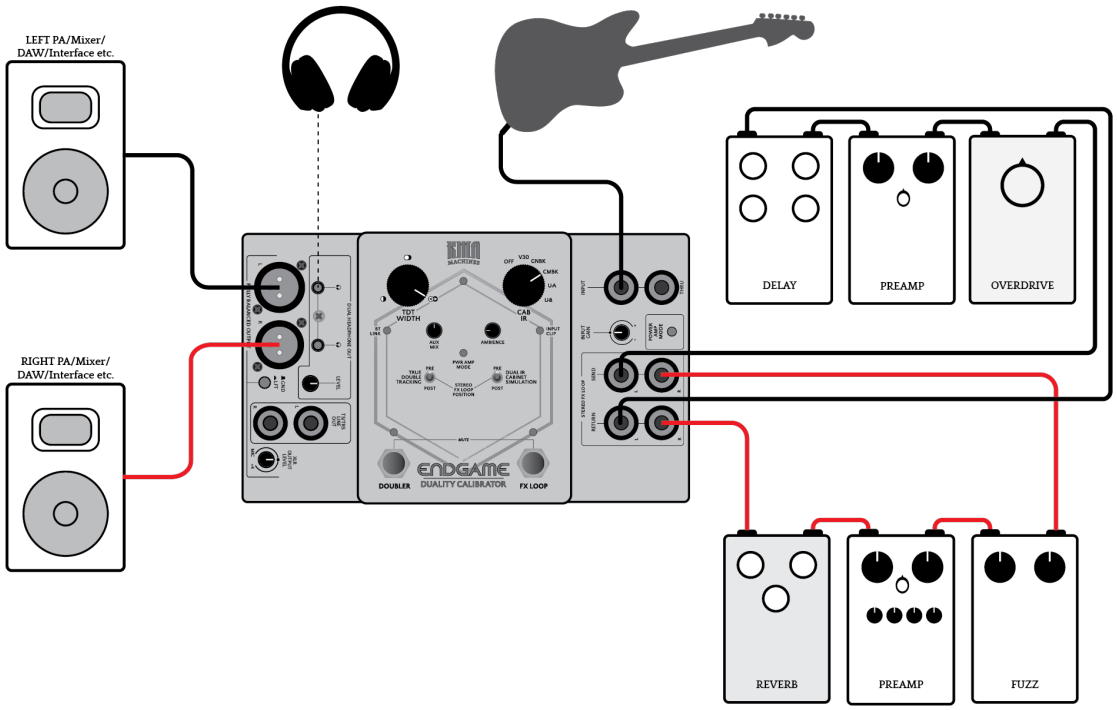
KMA ENDGAME Setup example: Stereo Input

If you wish to connect a stereo device – such as a stereo Amp/Cab Sim or synth etc. – directly to ENDGAME, then you can connect these via the Stereo FX Loop return.

While this setup will negate the FX Loop, it still allows you to gain benefits from all the other ENDGAME features. This setup also compliments your device with a more comprehensive set of inputs and outputs, such as dual headphone outlets, Pro level XLR, separate TS/TRS connections, Bluetooth etc. And it will also turn the FX Loop footswitch into a single-press mute function.

Tone Tip: While for the most accurate performance our custom True Double Tracker algorithm should be fed with a *mono* signal, it still has a useful and very pleasing effect on stereo signals. In the majority of cases, Stereo effects are usually added after the guitar preamp, power amp and speaker when mixing or recording. However, note that if you wish to use a preferred Stereo Cab/Amp Sim device, most of these are fundamentally mono internally (only built in simple ambience or stereo input signals are processed to pass through in stereo), so we do suggest you experiment with running these kinds of devices in mono directly into the ENDGAME's input and use the FX loop for your stereo pedals. This will allow you to get the best benefits and tonality that ENDGAME provides. For this setup, you need to make sure that both FX LOOP POSITION toggles switches are set to **POST**.

11.4 Rig Doubler



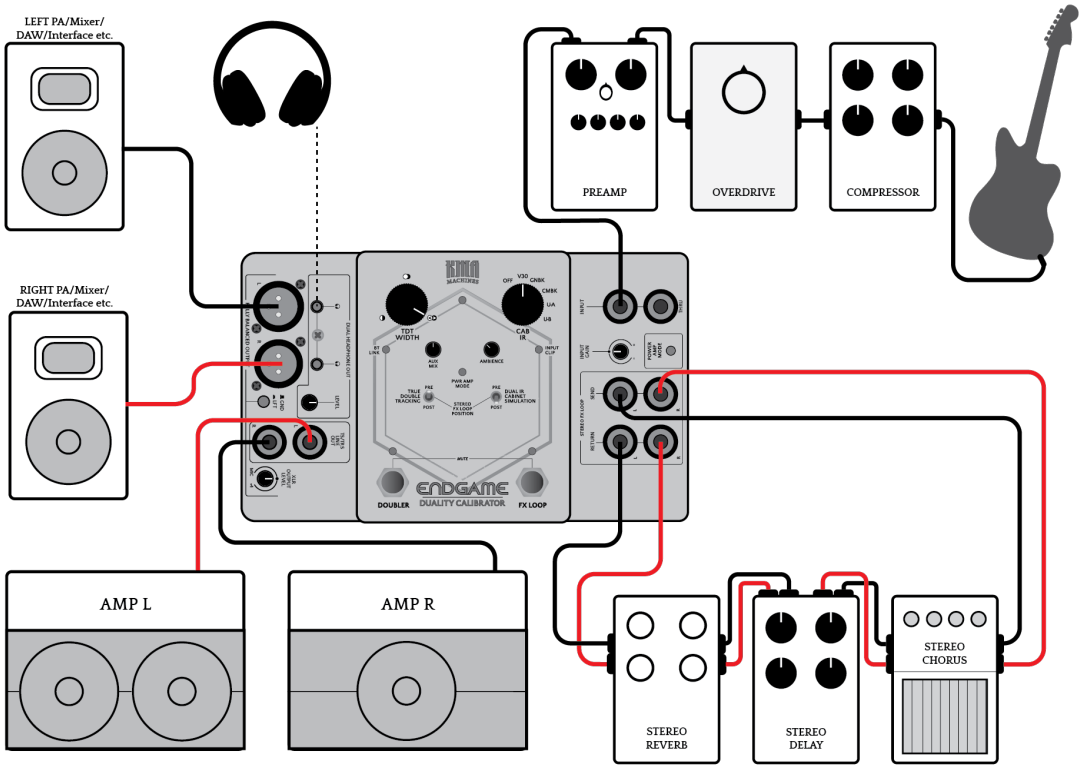
KMA ENDGAME Setup example: Rig Doubler

Utilising the ENDGAME's ability to create a dual amp setup from a mono signal, try plugging your instrument into the ENDGAME directly. Then use the left and right channels of the loop for two separate and complete mono signal chains. These mono signal chains are then summed within the ENDGAME.

Adding different preamps or amp modellers in each channel can create interesting results, with the difference in each perceivably adding depth and aural distinction to your overall tone.

Tone Tip: You can also use each side of the FX loop for creative endeavours with mono effects. Try experimenting by blending different mono delays, reverbs and modulations, creating virtually unlimited interesting and unique textures for each stereo side of ENDGAME's output. For this setup, we also recommend that the FX LOOP POSITION toggles switches are set as follows – TDT set to **PRE** and CAB IR set to **POST**.

11.5 Multi Monitoring



KMA ENDGAME Setup example: Multi Monitoring

In a live scenario, instead of using In-Ear Monitoring or a wedge monitor mix, you may wish to use guitar combos or a stereo power amp rig with speaker cabinets so you can hear yourself.

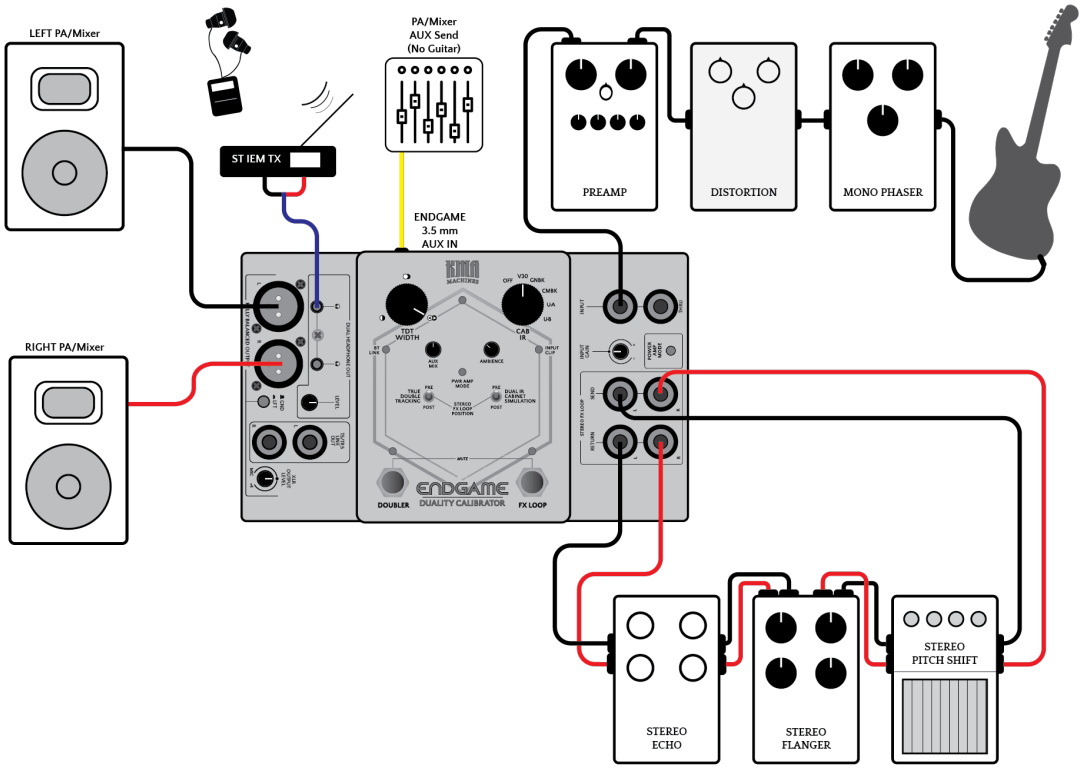
Normally this would not be a great idea with any cab/amp simulator devices as this duplicates the purpose of the device. However, we gave an option to achieve just that.

By moving the second internal dip switch to the “OFF” position, the Impulse Response, Power Amp and Ambience sections of the ENDGAME are bypassed from the TS/TRS outputs. For more information, see the “Internal DIP Switches” section.

This allows you to use these connections for your amps, while the XLR outs send the full signal chain, including Impulse Response, Power Amp and Ambience to the Front of House or any other external monitoring system, all adding flexibility and maximising the potential of your on-stage setup.

Tone Tip: Rather than micing up cabs at a performance, taking the direct signal from the ENDGAME’s XLR outputs guarantees that your stereo tone arrives at the desk exactly the way you intend it to be heard. For this setup to function correctly, we recommend that the **TRUE DOUBLE TRACKING** toggle switch is set to **PRE**, while the **DUAL IR CABINET SIMULATION** toggle switch must be set to **POST**.

11.6 In Ear Monitoring Magic



KMA ENDGAME Setup example: In Ear Monitoring Magic

When using In Ear Monitors for your live monitoring, the mix for this is usually provided from the PA/Front-of-House mixer etc. via an Aux Mix/Send.

However, you may want more of your own level or have an easy and simple way to blend your own monitoring levels.

Many musicians can experience a slight delay between their own signal and what comes back from the monitor mix depending on the type of connections used and this is even more prevalent with many digital consoles. In addition, if there are not enough aux sends on your rig, sometimes you may not be able to hear yourself in stereo either.

So, by using the analog AUX input for your monitor mix in and the ENDGAME's headphone out to your wired IEMs (or connected to your own IEMs wireless set up) you will have more direct control over your own levels. In this case though, you just need to set the relevant internal DIP switch to not pass the Aux input section to the Main Outputs (see Section 5.5 Internal DIP Switches) – no more debating with the engineer for "more me" – you have your own control!

Tone Tip: If your Mixer's dedicated Aux send is Mono, you will need to make a special 3.5 mm mini TRS cable where both left and right poles are "bridged" to both sides. We recommend that any Aux mix sent to ENDGAME has no guitar signal present, else you may experience strange effects like comb filtering etc. To set your ideal balance between the direct ENDGAME signal and your PA Aux feed, use the AUX MIX control to blend. For this setup, we recommend that both FX Loop position toggle switches on the ENDGAME are set to **PRE**.

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12. Updating Firmware

ENDGAME represents a significant amount of development, testing and cutting edge technology. As with all complex digital devices, we may routinely seek to improve or even add new features to help you get the most out of your product. Consequently, there may be firmware updates issued in the future.

Any of these firmware updates can be loaded via the **USB-C** socket connected to a Mac or PC and using our dedicated updating applications, available on the ENDGAME product page[https://kmamachines.com/endgame#update].

12.1 Apple MacOS Installation

There are two versions of the ENDGAME Mac software, depending on the chipset of your machine. If your Mac is based on an Intel chipset, choose the Intel Installer which is compatible with MacOS 10.14 or later. However, if you have an Apple Silicon device (M1/2/3/4 etc.), choose the ARM64 Installer which is compatible with MacOS 11 or later.

1. Download the relevant Mac .zip file for your computer.
2. Once this is in your downloads folder, unpack the zip file (double click) and run the .dmg file inside.

Pull the KMA app icon across into the Applications folder icon and follow all on screen instructions.

The KMA ENDGAME Updater should now be available in your Applications folder or in Launchpad.

Once installed, you may unmount the installer from your Finder (by selecting eject) and then delete the downloaded installer as you see fit.

12.2 PC Installation/Operation

For PCs running on Windows 10 or 11, follow the procedure below.

1. Download the Windows .zip file.
2. Once this is in your download folder, unpack the zip file (double click) and run the .exe file inside.

12.3 ENDGAME Firmware Update App

To transfer a Firmware update to your ENDGAME, connect the pedal to 9 V DC power and to your computer via ENDGAME's USB-C port and a suitable USB cable.

Run the KMA Machines ENDGAME Updater app you have downloaded from the KMA website[https://kmamachines.com/endgame#update] and installed on your computer.

When you open the app, it should detect your ENDGAME pedal, if it is connected to your computer via USB. If not, unplug and re-plug the USB connection or try another known working USB cable.

Once ENDGAME is detected, the app will state **"KMA Machines ENDGAME Connected"** in the middle of the window. It will also display the current Firmware version that is installed to your unit.

At the top right of the window, you will see a drop down that selects which version of firmware you wish to install to your pedal (the latest V2 version and original factory V1.04).

Once you've selected which firmware you wish to install, press **TRANSFER** and it will send the selected firmware to the device. The progress bar will show you **"Writing Firmware"** and the status. Once the update is complete, it will display **"Transfer Complete"**.

To check the Firmware transfer is successful, simply power cycle the unit (unplug ENDGAME from 9 V DC power then re-apply power) and let it reboot.

Leave the app running. Once rebooted, ENDGAME should reconnect with the app and display the new version of firmware you just installed.

Note: While the ENDGAME is a plug and play class compliant USB device, we also highly recommend that you unmount (Mac)/ Eject (Windows) the mass storage device/drive before unplugging it from your computer. This will help to prevent any connection errors or data loss when reconnecting.

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13. Factory Reset

In the event that you wish to return your ENDGAME to its original factory settings, proceed as follows:

1. Disconnect Power.
2. Make sure **both** FX Loop Position toggle switches are in the **PRE** position.
3. Press and hold the **DOUBLER** Foot-switch and the **PWR AMP MODE** button.
4. Reapply power to your ENDGAME, while continuing to hold these controls for a few seconds.

Note: Resetting the product to factory settings deletes any customised loaded Impulse Responses stored in the on-board User Memory Slots (UA and UB).

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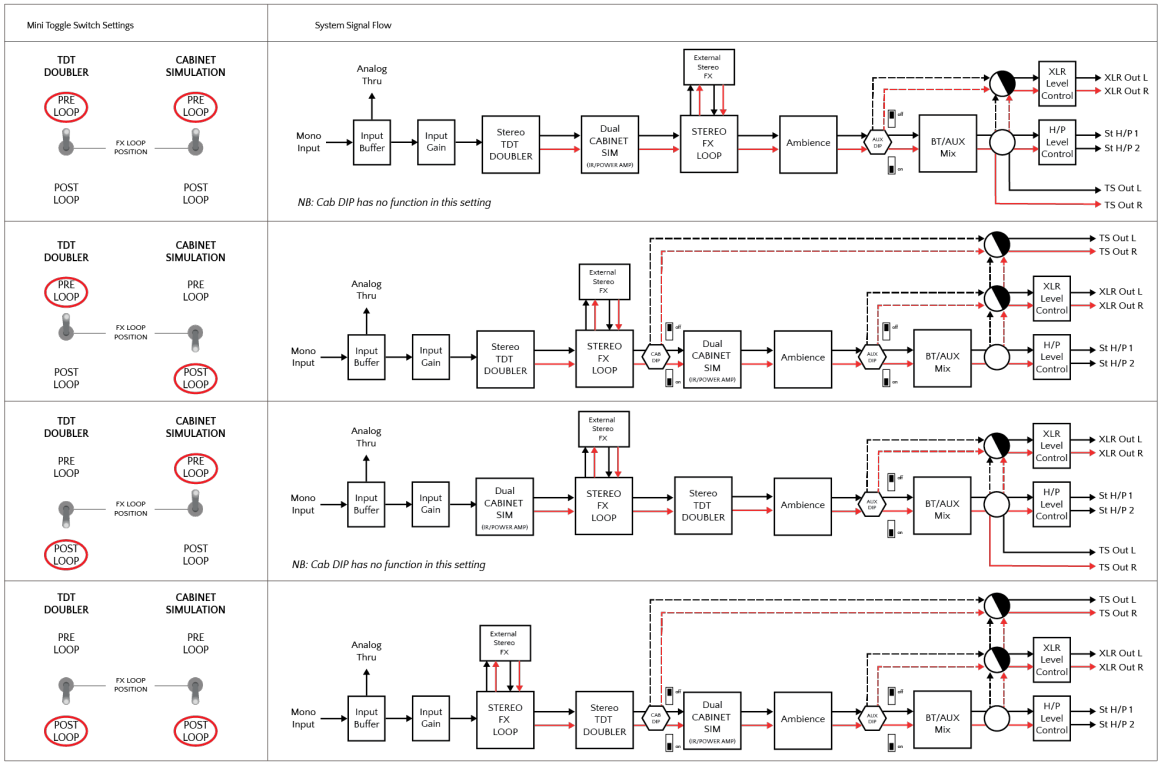
14. Internal Signal Routing



KMA ENDGAME – internal signal routing

This diagram shows ENDGAME's internal audio signal routing.

The position of the Stereo FX loop can be changed based on the settings of the two toggle switches on the front panel. For more information, see the "FX Loop Position" section.

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15. Foot-switch Behaviour

(V2 Firmware onwards)

To allow the DOUBLER and FX Loop Foot-switches to be able to be used as secondary function triggers, these work as Activate on RELEASE, by default. This can have some advantages and disadvantages, depending on how you use ENDGAME.

However, if preferred for operation, this can be changed to Activate on PRESS. Note that in this mode you will lose the ability to edit any secondary function on the fly.

To swap between the 2 Foot-switch modes, unplug ENDGAME from 9 V DC power, then press and hold the DOUBLER Foot-switch while re-powering up the pedal. The alternate Foot-switch mode will then be active.

Notes: Changing the Foot-switch behaviour will not affect any last stored secondary function.

For example, if the TDT Timing has been adjusted in Activate on RELEASE mode and Activate on PRESS mode is later selected, the edited Timing settings will remain, just there will be no way to re-adjust these settings directly, unless you revert to Activate on RELEASE mode.

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