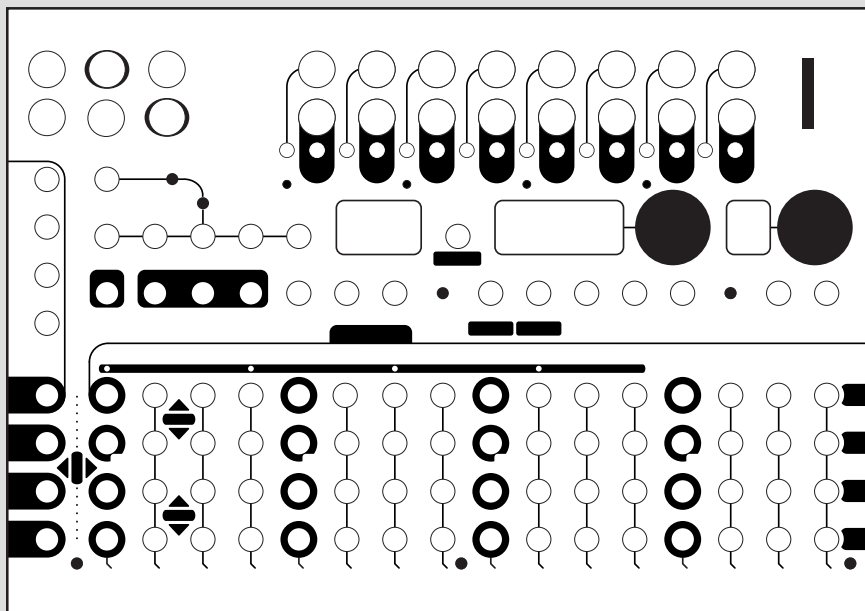


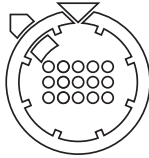
WMD

METRON



ADVANCED TRIGGER
AND GATE SEQUENCER

USER MANUAL



METRON

*ADVANCED TRIGGER
AND GATE SEQUENCER*

SUPPORTING FIRMWARE V1.6 FORWARD

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1. INTRODUCTION

Thank you for choosing the WMD Metron Performance Sequencer. Metron is a dynamic performance gate sequencer ideal for real-time pattern creation, live performance, and improvisation. It features 16 outputs and over 93 buttons, making it easy to “push” the rhythm and control of your Eurorack into rewarding territories. To make the most of the machine, we recommend that you carefully read this manual.

A Note From the Designer:

WMD’s niche is: “New Sounds, Maximum Experience”, and while Metron may be silent on its own (unless you really like clicks), it absolutely creates the maximum experience one can have with modular and rhythm. We have been pushing our gear to be ever more playable and versatile in a live setting, to help you play for longer, make better transitions, and get the most out of the other modules in your rig. We make gear to make your mind’s ear a reality.

Years of internal iteration of Metron gives you modern, unequivocal control over timed events while retaining the familiarity of the classic trigger sequencer. We have agonized over all aspects of the human interface to create a device that allows the immediate expression of rhythm. Three years of development, sixteen hardware revisions, and thousands of hours coding have resulted in a machine that is both fluidly satisfying to play and vast enough to challenge and excite its human for years.

Thank you for supporting WMD, you allow us to continue to create. We hope to do the same for you.

A handwritten signature in black ink that reads "W. Mathewson". The signature is written in a cursive, slightly slanted style.

1.1 CONVENTIONS OF THIS MANUAL

We have used the following conventions throughout the manual:

Button names are written in uppercase and bracketed letters.

For instance, the button labeled “DUPL” is called [DUPL]. Encoder 1 would be referred to as ENCODER 1, while the encoder 1 button will be [ENCODER 1]. A push of the encoder button will be indicated with brackets, while a turn of the encoder will not.

Mode names are capitalized followed by the word Mode. The Compose Mode is an example of this.

Functions where settings can be made or actions performed are written in upper case letters and underlined. For example: SAVE SESSION.

Messages visible on a screen are written in upper case letters and enclosed in apostrophes. Like this: 'ENABLE'

The following symbols are used throughout the manual:



Important information you should pay attention to.



A tip to make it easier to interact with Metron.



Information related to the Voltera control voltage expander.



Blinking LED: Switches between bright on and off.



Breathing LED: slowly pulses between bright and dim.



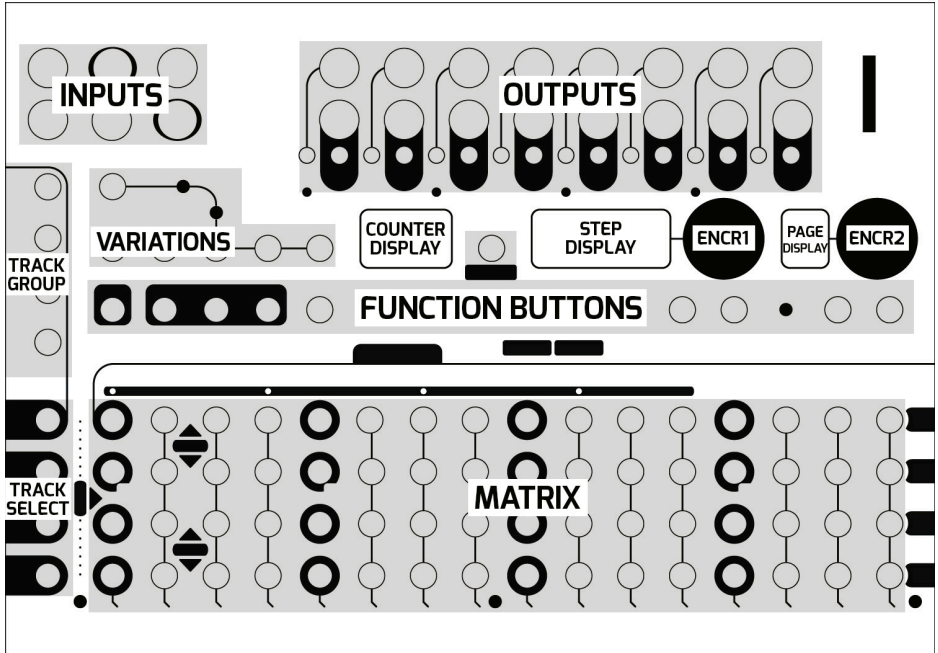
Bright LED



Dim LED

2. USER INTERFACE AND CONNECTIONS

Metron's interface has been divided into functional sections. These sections will be referred to by the labels shown in the diagram below.



2.1 FRONT PANEL OVERVIEW

- I. **VARIATIONS:** There are 5 VARIATION buttons: A, B, C, D, and E, as well as the COMPOSE button. Use them to select and navigate between variations.
- II. **TRACK GROUP:** For most modes, Metron can display up to four tracks at a time. The group of tracks currently displayed are selected with the TRACK GROUP buttons.
- III. **TRACK SELECT:** Multifunction buttons generally associated with their corresponding track or MATRIX row function.
- IV. **FUNCTION BUTTONS:** Allow the user to perform functions and enter the different modes on Metron.
- V. **MATRIX:** The main editing and data entry area of Metron. Its function changes depending on the current mode.
- VI. **COUNTER DISPLAY:** Simple bar counting display that shows total time elapsed in the system. Various conditions will cause this counter to reset. Some modes will use this display for text information.
- VII. **STEP DISPLAY:** Normally displays the master track playhead position of the playing variation. Some modes will use this to display text information.
- VIII. **PAGE DISPLAY:** Displays the page you are viewing. There are 16 pages but only a 1 digit display, so pages 9 – 16 are marked 1. – 8. with a decimal.
- IX. **ENCODER 1:** Responds to push as well as turn. Its function is related to the current mode.
- X. **ENCODER 2:** Responds to push as well as turn. Its function is related to the current mode.
- XI. **MEMORY CARD:** Metron requires a memory card for all memory functions. The unit will operate without a memory card, but nothing will save.



The memory card is NOT hot swappable and should be present in the unit from startup until shutdown.

2.2 REAR CONNECTIONS

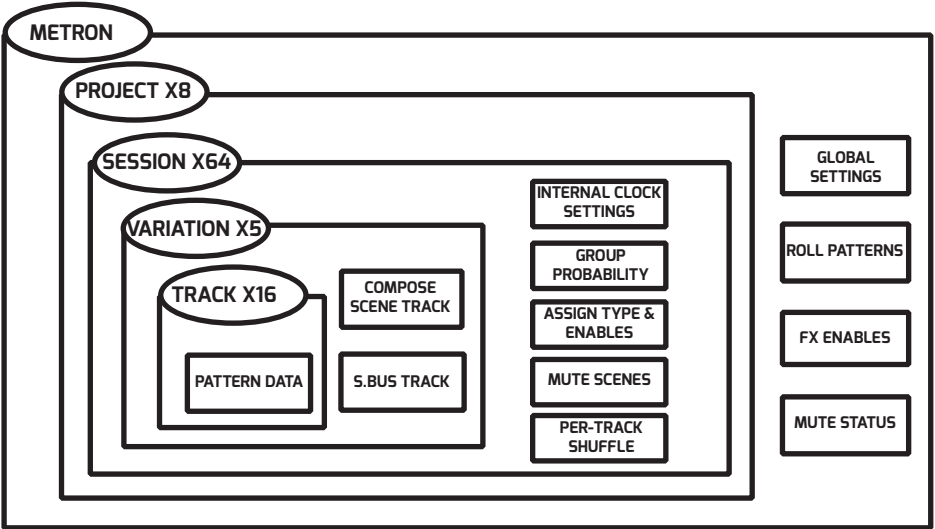
- I. **POWER:** Metron uses a 16 pin power connector in order to interface with the Select Bus. No power is consumed from the +5V or -12V rails.
- II. **SYNCBUS:** This connector allows for integration with modules and hardware that uses the SyncBus start/stop protocol.
- III. **EXP:** 2x proprietary bus connectors for connecting Metron and expansion units. One connector has a terminator labeled “EXP TERM.”
- IV. **USB:** Development use only. Not for use by customer.
- V. **BOOT SWITCH:** Enables the USB for recovery. Must be set to “NORM” for Metron to operate.



The Boot Switch must be set to “NORM” for Metron to operate. Metron will not power on if the switch is set to USB.

3. OVERVIEW OF METRON'S STRUCTURE

The following diagram shows Metron's memory hierarchy.



3.1 SETTINGS FILE

All data aside from project data is stored in the global settings file, called "SETTINGS.WMD", located at the root of the memory card.

3.2 PROJECT

The root of the memory card also contains a number of project folders. All session data is stored inside the project folders. Metron can store up to 8 projects.

3.3 SESSION

A session represents a memory save in Metron. Every project contains 64 sessions. A session contains the pattern data for 5 variations, 16 Mute Scenes, and settings for Internal Clock, Assign Input and Per-Track Shuffle.

3.4 VARIATION

Variations are Metron's working memory. Each variation stores all of the track information. This means the user has 5 quick access memory slots available to them at all times. Additionally, Metron has the ability to play and edit separate variations. This allows the user to build a fresh pattern while the last one is still playing. Variations are the key to dynamic, evolving performances and composition with Metron.

3.5 TRACKS

Metron features 16 standard tracks as well as an S.BUS track, compatible with Select Bus. Each of these tracks can be up to 256 steps in length. Standard tracks offer additional deep pattern editing features, like 48ppqn resolution, shuffle and triplets.

3.6 COMPOSE SCENE TRACK



Pairing any number of Voltera expanders with Metron will unlock an additional track referred to as the "COMPOSE SCENE TRACK." This information is presented here because the data for this track is distributed between the memory cards in expander units and Metron itself. For a deeper explanation of this track and it's features see "SPECIAL FUNCTIONS".

4. VOLTERA EXPANDER



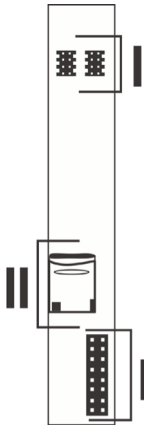
This section contains information related to the separately available Voltera expansion module. Ignore this section if you do not have Voltera.

4.1 INTRODUCTION



Expand your rhythmic control of gates to control voltage with the Voltera voltage expander. Every Voltera adds 4 bi-polar CV outputs presented as completely independent tracks. Add up to 16 Volteras to a Metron unit for a total of 64 control voltage tracks.

4.2 REAR CONNECTIONS



- I. **EXP:** 2x proprietary bus connectors for connecting multiple Metron and Volteras.
- II. **MEMORY CARD:** Voltera requires a memory card to be present at all times.
- III. **POWER:** Voltera uses a 16 pin power connector. No power is consumed from the +5V.

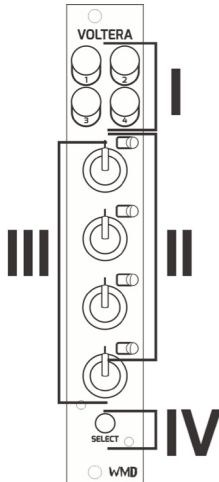
4.3 CONNECTING VOLTERA AND METRON



The EXP headers on the back of Metron and Voltera make it extremely simple to connect expanders to Metron. Simply connect one 8-pin ribbon cable, supplied with Voltera, to either of the two EXP headers on Metron. Be sure to orient the red stripe toward the white dot printed next to the “EXP” label. Connect additional Voltera’s either to each other or to the second EXP header on Metron. Finally, place the EXP TERM covers on any open headers. It is generally best practice to string or chain Metron and Volteras one by one, and place EXP TERM covers at either end of the string.

4.4 FRONT PANEL OVERVIEW

Voltera's interface is an extension of Metron's front panel. Most of the Metron track functions can be performed on Voltera by substituting a press of the [TRACK SELECT] button for the "turn" gesture described in section 4.5. Functions are explained with more detail in their corresponding Metron sections. These sections will refer to Voltera's interface using the following labels.



- I. **OUTPUTS:** 4x bi-polar CV outputs. Ranges from -5V to 5V.
- II. **TRACK LED:** 4x bi-color LED's associated with the track label.
- III. **TRACK KNOB:** 4x potentiometers for entering data and selecting tracks.
- IV. **SELECT BUTTON:** Back lit momentary push button used for output takeover, and viewing set voltages.

4.5 TRACK SELECT "TURN" GESTURE

Because there are no individual track select buttons on the Voltera unit, the knobs are used to select each track using the "turn" gesture.

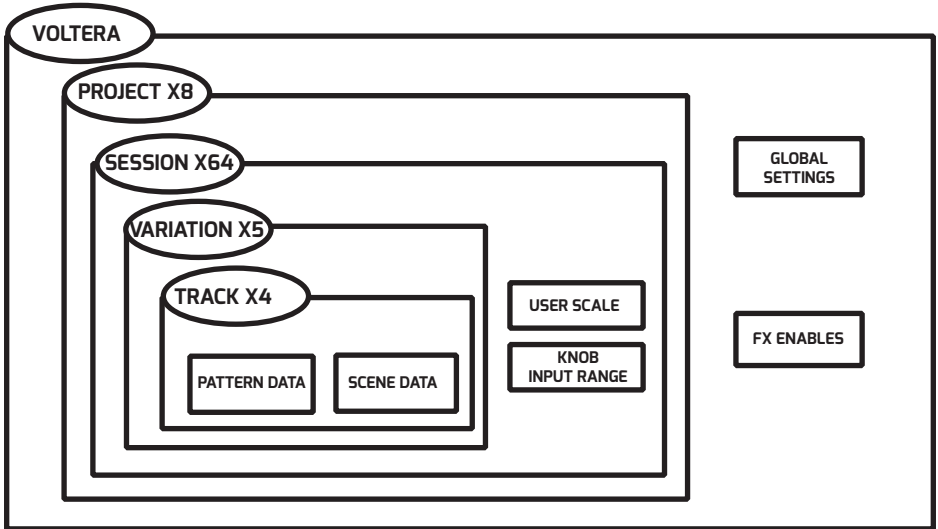


Perform the "turn" gesture by turning a knob to the full CW position then a small turn back in the CCW position

Most functions that are available to Metron tracks are also available to Voltera tracks by using the "turn" gesture.

4.6 MEMORY OVERVIEW

Voltera features it's own memory card located on the rear of the unit for saving. The following section describes the file structure and layout of said memory card.



For more information on Voltera Operation, check out section 5.3 Voltera Basic Operations on page 20.

5. BASIC FUNCTIONS

5.1 VARIATIONS

Variations are key to making music with Metron. A variation contains the data for all 16 tracks. The user has 5 variations to facilitate pattern composition, allowing for seamless transitions when recording or performing live.

5.1.1 Editing / Playing Variation

The user has the ability to view and edit variations that are not playing. The variation currently playing is indicated by a bright LED on the VARIATION buttons. If the editing variation is not the playing variation it will be indicated by a breathing LED on the VARIATION buttons (*fig. 4.1*)

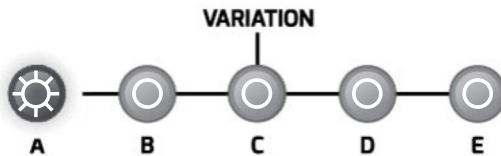


fig. 5.1: **Editing and Playing Variation are both Variation A.**

5.1.2 Select a Variation for Editing

To select a variation for editing simply press the [VARIATION]. To select a variation to play, see FOLLOW below. (fig. 4.2)

5.1.3 Follow

Variations can be triggered to follow one another. All playheads will reset once the new variation begins playing unless otherwise noted.

End of Variation:

Press the [VARIATION] you would like to play once to edit, and a second time to follow at the end of the variation.

End of Bar:

Press the [VARIATION] that is set to follow at end of the variation currently playing once more to make it follow at the end of the next bar.

Instant:

Hold [FILL FX] and press the [VARIATION] you would like to play. The variation will begin playing immediately from the current playhead position.

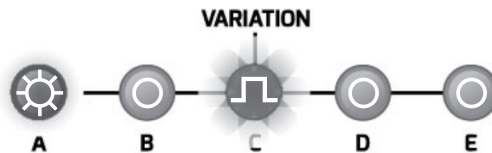


fig. 5.2: Playing Variation is A, a blinking LED indicates that Variation C will follow.



Pressing [RESET] will force any pending FOLLOW operation to happen immediately.


5.2 COMPOSE MODE

Compose Mode is considered to be the main or default mode of Metron. The four rows of the matrix correspond to the four tracks in the current TRACK GROUP.

Press [COMPOSE] at any time to return to Compose Mode.

Enter trigger steps to a track in Compose Mode by pressing the [MATRIX]. Press an active step to turn it off.

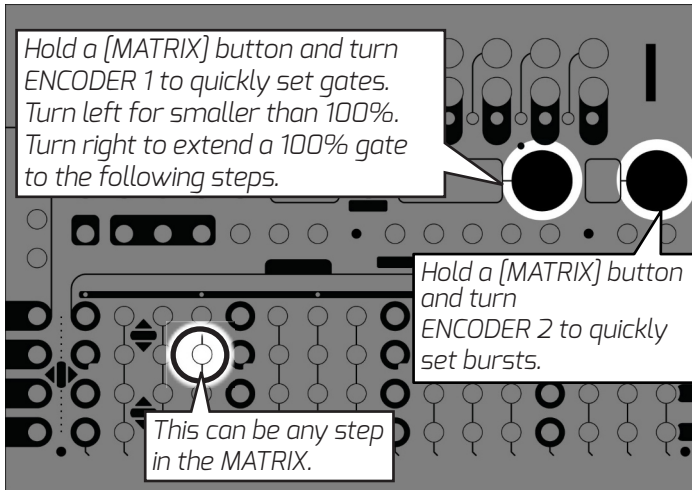
Mute status of the track is indicated on the LED. LED is dim when muted.

 If a Voltera is present, pressing [COMPOSE] while already in COMPOSE MODE will bring the user to the “COMPOSE SCENE MODE” described under section 8 “SPECIAL FUNCTIONS”.

5.2.1 Quick Burst / Quick Gate

The user can quickly enter burst steps without ever leaving Compose Mode by holding the [MATRIX] step and turning ENCODER 2. The burst type will show on the CURRENT STEP display.

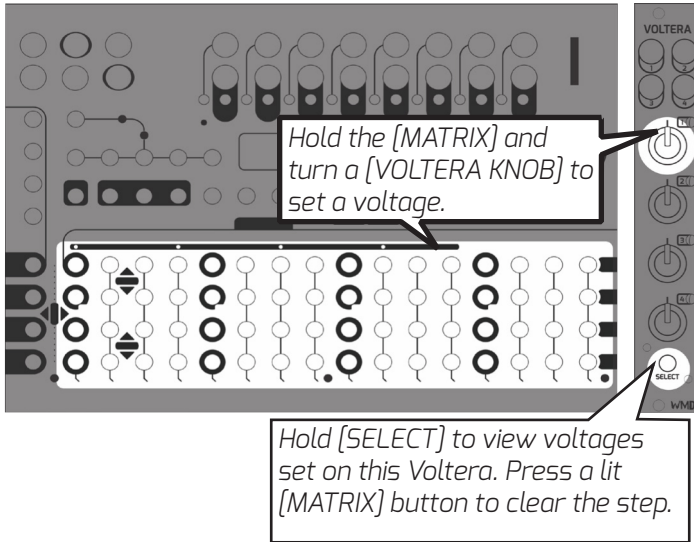
A similar function is also extended to gates that allows the user to quickly enter long gates. Hold the corresponding [MATRIX] step and turn ENCODER 1. Turning the encoder to the left will make a gradually decreasing gate on the held step. Turning to the right will set the step to 100%. Continuing to turn the encoder will push 100% gates to the following steps extending to a multi-step gate.



5.3 VOLTERA BASIC FUNCTIONS



This section contains the functions that are available to Voltera when Metron is in Compose Mode.



5.3.1 “Last Event” Method of Operation

Voltera is a “last event” sequencer. This means that the outputs will always hold the voltage of the “last event” sent to them. Setting a step will not send an event to the output until the sequencer plays that step.

5.3.2 Setting a Voltage on a Step

Set a Voltage on a step by holding a Metron [MATRIX] button and then turning the [VOLTERA KNOB] associated to the output the user would like to set the voltage on. The voltage or quantized v/oct value will be displayed on Metron's [CURRENT STEP DISPLAY] as well as Voltera's [TRACK LED].



RED/GREEN TRACK LED

*Positive Voltages are Green
negative voltages are Red.*



NON-QUANTIZED VOLTAGE

*Display shows volts. See LED for
positive or negative indication.*



QUANTIZED VOLTAGE

*The leftmost digit displays the
note. The center indicates whether
the note is flat. The rightmost digit
is the octave.*

5.3.3 Audition Step While Setting Voltage

Pressing the [SELECT] button before or while setting a voltage on a step will "Audition" the voltage of that step. The output voltage will be directly set by the knob as long as the [MATRIX] button is held.

5.3.4 Live Takeover

Holding the Voltera [SELECT] button on Voltera before turning the [VOLTERA KNOB]

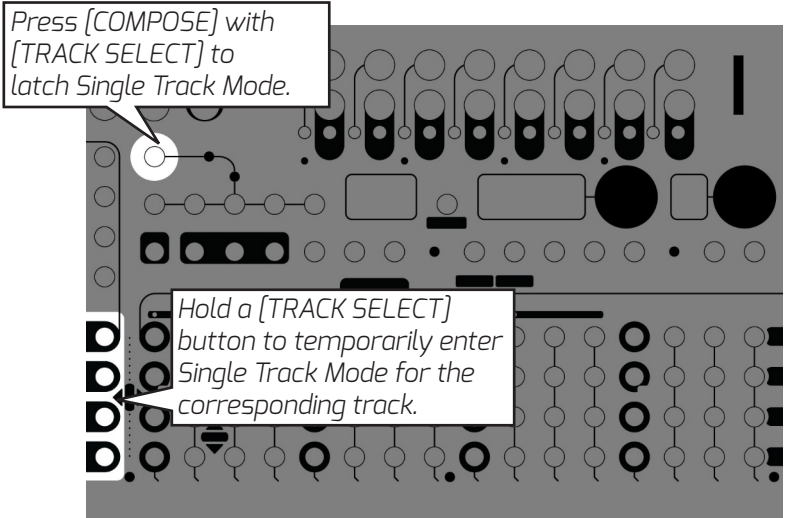
will set the output to "Live Takeover." When this is enabled the [VOLTERA KNOB] directly sets the voltage of the corresponding output. Regardless of the state of the sequencer. When the user releases the [SELECT] button the output will return to normal sequencer driven operation.

5.3.5 Advanced Voltera Settings

See page 45 for deeper settings for Voltera.

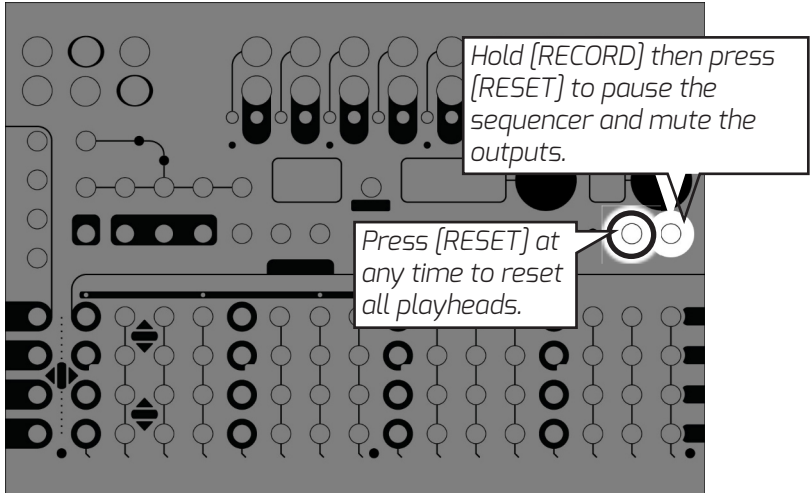
5.4 SINGLE TRACK VIEW

The user also has the option to display four pages of a single track across the four rows of the MATRIX. This is referred to as Single Track View. Temporarily enter this view by holding the corresponding [TRACK SELECT] button. Latch this view by then pressing [COMPOSE] or vice versa.



5.5 RESET / PAUSE

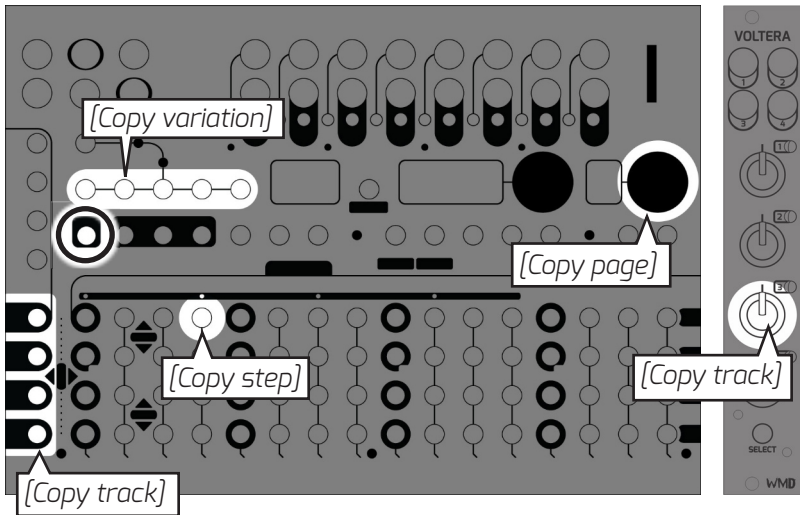
Pressing this button will immediately reset all playheads inside the unit. It will also force any requested memory loads or follow actions to happen immediately. The RESET function is available from all modes in Metron, except for when the [RECORD] button is held. Holding [RECORD] and pressing [RESET] will pause the sequencer and mute the outputs. Repeat this button combination to un-pause.



5.6 DUPLICATE

DUPLICATE is one of the most essential functions to working quickly in Metron. Data types are arranged hierarchically. Anything lower in the hierarchy can take the data of something higher in the hierarchy, E.G. a user can copy a variation to a single track (fig. 5.3)

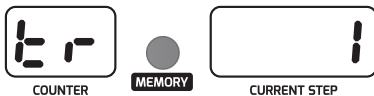
All of Metron's DUPLICATE functions are performed using a similar button combination. The user enters Duplicate Mode by holding [DUPLICATE]. The sequence of buttons pressed after entering Duplicate Mode determines the data that will duplicate. First press is Copy and subsequent presses are Paste. Paste actions will continue until [DUPLICATE] is released, unless otherwise noted in the following section.



CURRENT STEP

STEP 1: COPY

STEP display will show 'CPY' before the first button press.



COUNTER

MEMORY

CURRENT STEP

STEP 2: PASTE

The STEP and COUNTER displays will show the copied data after the first press.

DUPLICATE TYPES

COPY →	PASTE
VARIATION	VARIATION PAGE TRACK
PAGE	PAGE TRACK
TRACK	TRACK
STEP	STEP TRACK

fig. 5.3



A number of special helper functions are also contained in Duplicate Mode. These are CONTRACT, EXPAND, and PL.DUP (Pattern Length Duplicate). Find out more about these functions in Section 8 SPECIAL FUNCTIONS (fig. 5.6)

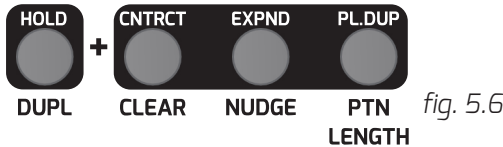


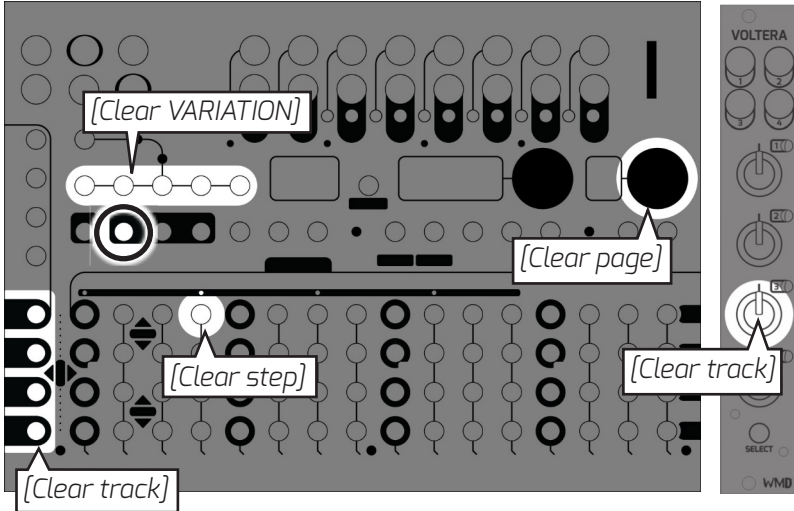
fig. 5.6



Voltera tracks can be selected for COPY or PASTE by replacing the button press with the “TURN” gesture described in “4.5 TRACK SELECT TURN GESTURE”. All duplicate types including the special functions are available to Voltera.

5.7 CLEAR

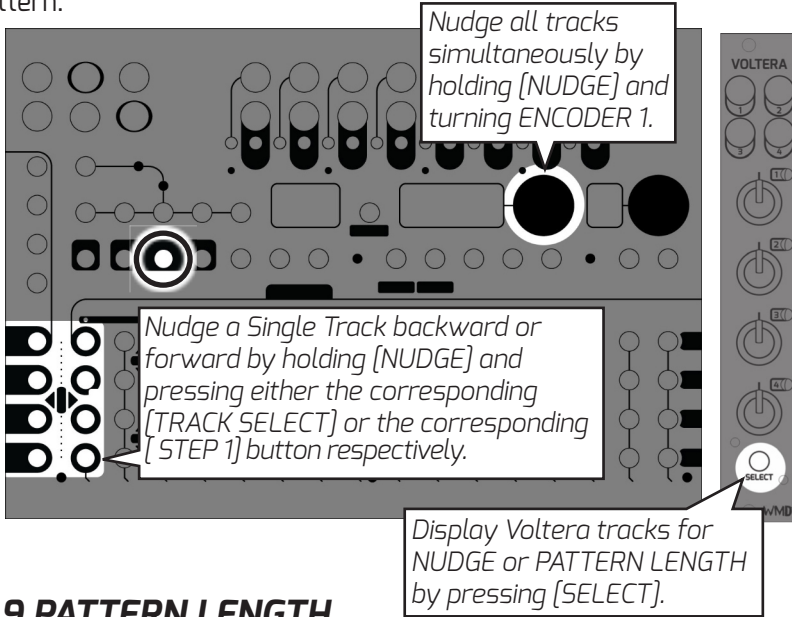
Quickly clear data by holding [CLEAR] and pressing the [VARIATION], [TRACK SELECT], any [MATRIX] button, or [ENCODER 2] corresponding to the data you would like to clear.



The first time an individual track is cleared will only delete the pattern data from the track. The pattern length will remain. Clearing the track a second time will reset the pattern length to 16 steps.

5.8 NUDGE

Metron has the ability to nudge a single track, or all tracks at once. Nudge data wraps at the track's pattern length, and the original first step of the pattern will blink in order to let the user know how far they've nudged the pattern.



5.9 PATTERN LENGTH

Every track in Metron can have its own independent pattern length.

To set a single track's pattern length hold [PTN LENGTH] and press the [MATRIX] button that corresponds to the desired last step on that track.

To set all tracks to the end of a page hold [PTN LENGTH] and press [ENCODER 2] while viewing the page you would like to end on.

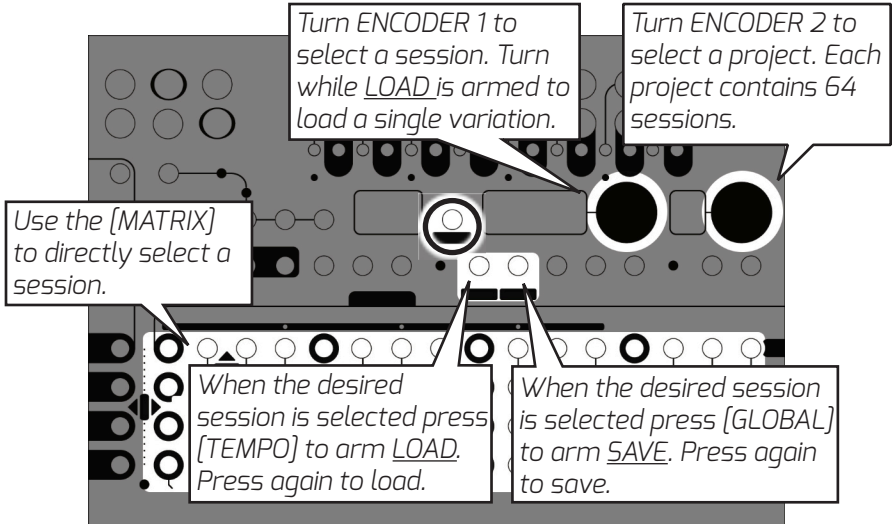
Increase or decrease the length of all tracks simultaneously by holding [PTN LENGTH] and turning ENCODER 1. Set all tracks to the length of the longest track by holding [PTN LENGTH] and pressing [ENCODER 1].



The user can also set pattern length in single track view. The rows of the MATRIX correspond to the following four pages of the selected track. Set a track to 64 steps without ever touching ENCODER 2!

5.10 MEMORY

Metron's memory can contain up to 512 sessions, addressed in banks of 64 across 8 projects. The memory interface is accessed by pressing the [MEMORY] button.



5.10.1 Save Session

Arm SAVE SESSION by pressing [GLOBAL] in Memory Mode. The display will show 'S' followed by the currently selected slot. Use ENCODER 1 to select a new slot if desired. Press [GLOBAL] again to save the session.

5.10.2 Load Session at End of Bar

The normal loading procedure will load the session at the end of the next bar, or the end of the pattern if it occurs before the next bar. First select the session you would like to load using the [MATRIX] or ENCODER 1. Arm LOAD by pressing [TEMPO]. The step display will show 'L' followed by the selected slot. Press [TEMPO] again to load.

5.10.3 LOAD A BLANK SESSION

Loading a session from an empty memory slot will load and automatically save a new, blank session. Global settings from the current session will be applied to this session.



Pressing [RESET] will force any pending Load operation to happen immediately even if no clock is present. If the display reads 'BSY', no force load will take place.

5.10.4 QUICK LOAD

This feature has been removed in Firmware 1.6 to enable the ability of loading blank sessions in Memory mode.

5.10.5 Load Variation Instant

The user also has the option to load a single variation or all 5 variations instantly. All other session information is ignored when a variation is loaded.

To load a variation follow the steps to arm LOAD (see above). Before pressing [TEMPO] a second time, turn ENCODER 1 to select the desired variation, or all 5. If you are loading a single variation, it will load into the current variation being edited. Press [TEMPO] to initiate the VARIATION LOAD. The data will load instantly.

5.10.6 Quick Load 5 Variations - Instant

Quickly load all variations while playing session data by holding [TEMPO] and pressing the [MATRIX] button corresponding to the desired session. The variation data will load instantly, and Memory Mode will exit.

5.10.7 S.BUS Loading

Metron responds to Select Bus program change messages by instantly loading a session. Enable this feature by setting S.BUS to 'IN' in GLOBAL settings.

5.10.8 Clear Memory Slot

Hold [CLEAR] and press the corresponding [MATRIX] button.



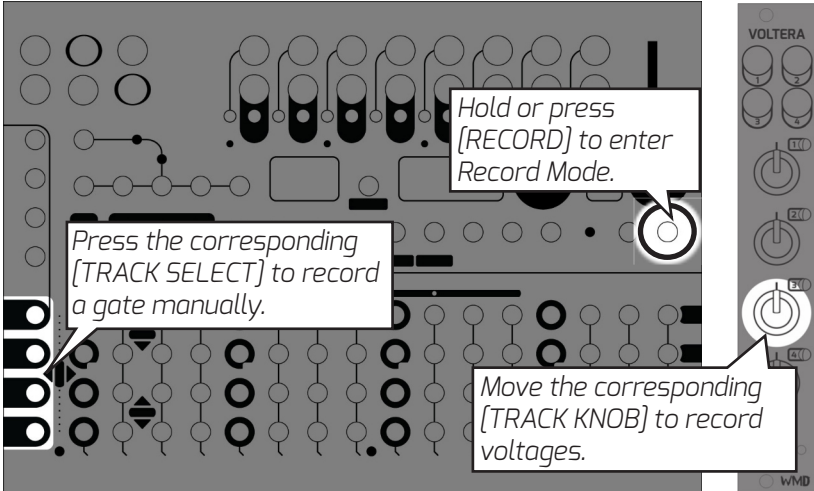
While in Compose Mode, you can quickly load a Session at the end of the playing variation by turning [ENCODER 1] until the desired memory slot shows on the [CURRENT STEP DISPLAY] then pressing the [ENCODER 1 BUTTON].



Loading and saving on Voltera is seamlessly handled by Metron. Simply perform the desired memory function and it will apply to Voltera.

5.11 RECORD

Quickly record manual triggers and gates to a track by holding or pressing [RECORD] then tapping the corresponding [TRACK SELECT] button.



5.11.1 Record Manual Gate

Hold or press [RECORD], then press the corresponding [TRACK SELECT]. Manual gate recording is quantized to the 16th note on the standard grid.

5.11.2 Record Voltages



Hold or press [RECORD], then move the corresponding [TRACK KNOB]. The last knob position before the sequencer moves to the next step will be the stored value.

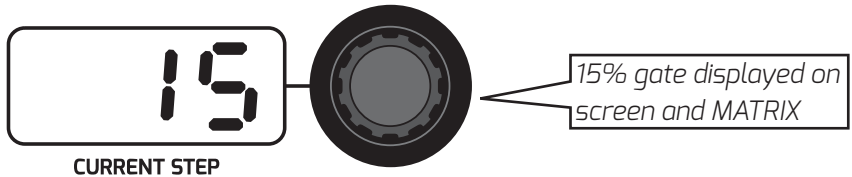
6. ADVANCED SEQUENCING

This section describes the deeper sequencing features of Metron.

6.1 BURST MODE / GATE MODE

Burst and Gate Modes allow the user to quickly enter predefined microstep data. Press and hold [BURST] or [GATE] to enter the corresponding mode. Step data entered in these modes are equivalent to microstep data and vice versa.

The STEP DISPLAY shows the displayed step type. Turning ENCODER 1 changes the displayed step type.



Blinking steps have data that matches the STEP DISPLAY



Steps that are bright but not blinking have step data beyond a standard trigger. This may be burst data, gate data, or microtiming data



The MATRIX shows steps with no burst or gate setting as dimly lit



NOTE: This display format also applies to Random Mode.

Burst Types:	Gate Types
2 Burst	15%
3 Burst	25%
4 Burst	50%
	75%
	100%

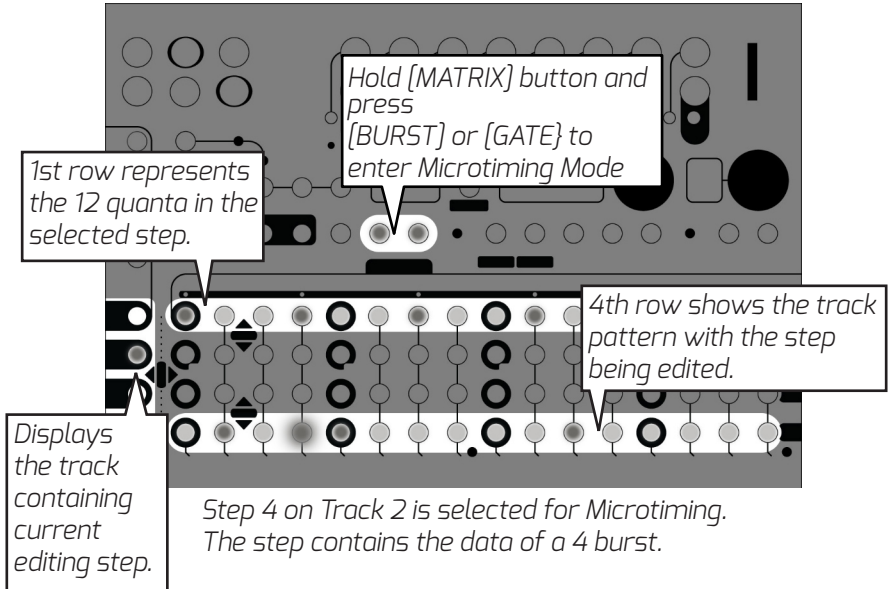
6.2 MICROTIMING

Microtiming Mode allows the user to access the full 48ppqn resolution Metron offers. The microstep view uses the fourth row of the MATRIX to show the pattern of the track that contains the current editing step. The current editing step will be blinking. The first 12 steps of the first MATRIX row are used to represent the time of one step divided into 12 equal quanta. The TRACK SELECT buttons display the track that contains the current editing step. Press any of the first 12 steps in [MATRIX] row 1 to toggle the microstep.

6.2.1 Enter Microtiming Mode

Holding a [MATRIX] button in Compose Mode and pressing [BURST] or [GATE] will enter

Microtiming Mode for the selected step.



Entering two sequential microsteps in Microtiming Mode makes a gate. There must be a space (off step) between on steps to produce separate triggers.

6.3 RANDOM MODE

Random Mode gives the user access to Metron's probability engine, as well as Metron's random pattern generation feature. These features are powered by a true analog random generator. Metron has the ability to assign a probability percentage to any step of the 16 tracks regardless of the step data contained. This is the percentage probability that the data on the step will play. Metron extends this core feature by adding an alternate event that takes place when the main event doesn't, as well as the ability to apply group probability to a group of steps so they either all happen or don't.

6.3.1 Random Pattern

Generate random patterns at the Track or Variation level by holding [RANDOM] and pressing the corresponding [TRACK SELECT] or [VARIATION] button.

6.3.2 Probability

Enter Random Mode by pressing [RANDOM]. The Random Mode display is similar to the Burst and Gate Mode displays. The STEP DISPLAY shows the displayed probability. Turning ENCODER 1 changes the displayed probability. The MATRIX shows steps with no probability setting as dimly lit. Steps that are flashing have the probability setting shown on the step display. Steps that are bright but not blinking have probability set to a different value than the one shown on the display. Press a [MATRIX] button to set the step to the probability shown on the display. Pressing it a second time will remove the probability data while preserving the pattern data.

6.3.3 Group Probability

The final amounts listed on the STEP DISPLAY are the letters A,B,C, and D followed by a number, E.G. "A.25". These represent Group Probability. All steps set to the same letter share a "coin toss." The probability "coin toss" takes place at the beginning of the variation. Change a group's probability setting by pressing [ENCODER 1]. A group can also use another group to define its probability setting; E.G. steps set to A.B will only play if group B fails to play.

6.3.4 Alternate Event

View the alternate event page by pressing [ENCODER 2]. The STEP DISPLAY will now show triggers, bursts, and gates. These events can only be placed on steps that already have a probability assigned to them. These steps will be lit brightly.



**Combining Group Probability, Alternate Event, and Bursts/
Gates can create dynamic patterns with structured variation.**

Probability Amounts:	Alternate Events
10%	Trigger
25%	2 Burst
50%	3 Burst
75%	4 Burst
Group A	15% Gate
Group B	25% Gate
Group C	50% Gate
Group D	75% Gate
	100% Gate

6.4 TRIPLET

Metron's engine allows the user to freely mix triggers contained on a triplet grid and standard grid at quarter note resolution. When a quarter note is set to triplet, only the first 3 steps in that quarter note will be lit. The fourth step can contain data, but it will be ignored during playback. Set a quarter note to triplet by accessing Triplet Mode and pressing the corresponding [MATRIX] button. Triplet can also be enabled for an entire track or variation by pressing the corresponding button while holding [TRIPLET].

6.5 PER-TRACK SHUFFLE

Metron offers the ability to shuffle clock on a per-track basis. These settings are saved within the session.

You can push every other step on a track back in time by up to 15 microsteps by holding the corresponding [TRACK SELECT] and turning Encoder 1. The offset will be displayed in microsteps on the step display.

Hold [CLEAR] and press [TEMPO] to set all tracks back to no shuffle.



Per-track shuffle is applied after any shuffle coming from an internal/external clock source. Per-track shuffle cannot be applied to Triplet notes.

7. FILL FX

The Fill FX mode is designed to give the user access to performance tools for generating fills and new patterns on the fly. The four rows of the MATRIX each represent a different tool. Row 1 is Mute, Row 2 is Roll, Row 3 is Loop, Row 4 is Gate.



Row 1: Mute – Stops output from playing.



Row 2: Roll – Plays a short preset pattern while the button is held.



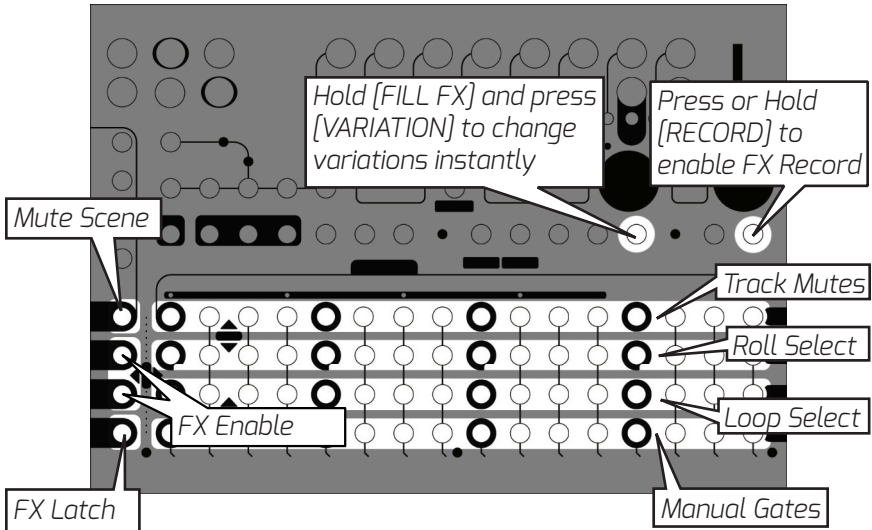
Row 3: Loop – Repeats a selected number of steps then returns when released.



Row 4: Manual Gate – Manually triggered gate. These will override muted tracks.



Mute and Roll offer advanced features described in their respective sections.



7.1 MUTE

Pressing any button in this row will toggle the current mute status of the selected track. Mute will stop anything from playing at the output, except for manual gates.

7.1.1 Recall Mute Scenes

Hold [TRACK SELECT 1] to enable the Mute Scene selection, and press a [MUTE] button to select a scene . Mute Scenes allow the user to set the mutes to a known status. All mute scenes are set to ON for all tracks by default. Recalling this scene would set all outputs to unmuted regardless of their previous status.

7.1.2 To Set a Mute Scene

Set the mutes to the desired configuration. Hold the [MUTE] button that corresponds to the desired scene slot and then press [TRACK SELECT 1]. Mute Scenes are saved with Session Memory. The last mute scenes set in the system will be loaded on power up.

7.1.3 Mute Scene Track Enable

By default, all tracks are enabled to respond to Mute Scenes. The user can disable this for a track on the fly by turning off the Mute Scene Track Enable. You can access this by holding Track Enable [TRACK SELECT 2 or 3] and pressing the corresponding [MUTE] button. Enabled tracks are lit, disabled tracks are dim.



Mute Scene Track Enable is inspired by a feature on recording consoles commonly referred to as “Mute Safe.”

7.2 ROLL

Roll switches the current playing pattern to a known stored pattern that starts when a [ROLL] button is pressed. Access Roll by pressing any of the [MATRIX] buttons in row 2.

7.2.1 Roll Track Enable

Roll can be disabled for certain tracks by holding Track Enable [TRACK SELECT 2 or 3] and pressing the [ROLL] button that horizontally corresponds to the track you would like to disable.

7.2.2 Roll Pattern Replace

Metron is filled with a selection of useful default roll patterns, but the user can replace any of these patterns as they please. To replace a pattern, first compose a 16-step replacement pattern in any track of Compose Mode. Feel free to use triplets as you please. When you are happy with the pattern, hold the corresponding [TRACK SELECT] and press the [FX FILL] button. Before releasing [TRACK SELECT], turn ENCODER 1 until the STEP DISPLAY shows the Roll selection you would like to replace. Press [ENCODER 1] to select and save. Roll patterns are stored in the Global Settings file.

7.2.3 Roll Pattern Special Track Enable

The Roll feature can be pushed into advanced territory by using the Special Track Enable feature. This feature allows a roll to contain its own track enable assignment. This allows you to decouple certain rolls from the main track enable and use them simultaneously. Access this feature by holding the [ROLL] you would like to set a Special Track Enable on, and pressing Track Enable [TRACK SELECT 2 or 3]. Row 2 will begin to flash. If all lights in the row are flashing, the Roll refers to the main track enable. Press any of these buttons to set the Special Track Enable for the selected Roll.

Default Patterns

The image displays 16 different drum fill patterns, labeled 1/4 through P8, in 4/4 time. Each pattern is shown on a single staff with a treble clef and a 4/4 time signature. The patterns are as follows:

- 1/4:** Four quarter notes.
- 1/8:** Four eighth notes.
- 1/16:** Sixteenth notes in pairs (two groups of four).
- 1/32:** Sixteenth notes in groups of four.
- P1:** Four groups of eighth notes, each with a quarter rest.
- P2:** Eighth notes with quarter rests, alternating in pairs.
- P3:** Eighth notes with quarter rests, alternating in groups of two.
- P4:** Eighth notes with quarter rests, alternating in groups of four.
- 1/4T:** Four quarter notes with triplet markings over the first two notes of each pair.
- 1/8T:** Eighth notes with triplet markings over the first two notes of each pair.
- 1/16T:** Sixteenth notes with triplet markings over the first two notes of each pair.
- 1/32T:** Sixteenth notes with triplet markings over the first two notes of each pair.
- P5:** Eighth notes with quarter rests, with triplet markings over the first two notes of each pair.
- P6:** Eighth notes with quarter rests, with triplet markings over the first two notes of each pair.
- P7:** Eighth notes with quarter rests, with triplet markings over the first two notes of each pair.
- P8:** Eighth notes with quarter rests, with triplet markings over the first two notes of each pair.

7.3 LOOP

The Loop effect allows the user to repeat a selected number of steps starting from the point the FX enabled. When disabled, the playhead returns to the position it would be at if the effect was never triggered.

7.3.1 Loop Track Enable

Use the Track Enable function to toggle whether Loop will effect the corresponding track. Hold Track Enable [TRACK SELECT 2 or 3] and press the corresponding [MATRIX ROW 3] button to toggle enable. Enabled tracks are brightly lit.



Using the “TURN” gesture in this mode will toggle the Track Enable status for the corresponding Voltera track. The current status is displayed by a yellow LED. It will be off if it is disabled. The user can quickly set all tracks on a Voltera unit by pressing the [SELECT] button.

7.4 LATCH FX

Latch an effect by holding it and pressing the Latch button [TRACK SELECT 4]. Holding Latch then pressing the effect will also work. Press the effect again or press Latch to disable the latch.



Only Loop and Roll can be latched on.

7.5 INSTANT VARIATION CHANGE

Holding the [FX FILL] button while selecting a variation will instantly jump to that variation without affecting the playhead. Use this feature to punch into variations and live “cut” them together.

7.6 RECORD FX

Some of the functions in the FX Fill Mode can be recorded. This includes Roll, Loop, and Instant Variation Change.

To record an effect, enable recording by pressing or holding the [RECORD] button, then enable the effect you would like to record. Effects running before RECORD was enabled will be disabled. Only one Roll may be recorded at a time. When recording instant variation change, any change will record to the variation that was active when RECORD was enabled.



Steal data from other variations by recording instant variation changes.

8. SPECIAL FUNCTIONS

This section contains information on some of Metron's unique helper functions. These functions are designed to inspire the user and help generate new ideas quickly.

8.1 COMPOSE CHAIN

This feature allows the user to chain the information from multiple variations together and paste it into the editing variation. Use this feature by holding the [COMPOSE] button, and pressing the [VARIATIONS] you would like to chain. The previous pattern in the editing variation will be buffered and continue to play until the first variation of the chain is pressed.

8.2 DUPLICATE PATTERN LENGTH (DUP.PL)

This feature helps the user extend their pattern length by copying the current pattern and duplicating it out to the new pattern length. Use this feature by first going to the page you would like to extend to. Then hold the [DUPLICATE] button and press [PTN LENGTH]. This will extend all tracks to the end of the viewing page. This function can be applied to tracks individually by holding [DUPLICATE], pressing the corresponding [TRACK SELECT] button, and then pressing [PTN LENGTH].

8.3 STEP TO ALL PAGES

This feature allows the user to quickly place a step on all pages. Use this function by holding [ENCODER 1] and pressing a [MATRIX] button. This function works in Compose Mode, Burst Mode, and Gate Mode.

8.4 CONTRACT

CONTRACT allows the user to destructively edit the data as if it were being played at 2x. Use this function by holding [DUPLICATE] and pressing [CLEAR]. Apply this function to a single track by holding [DUPLICATE], pressing the corresponding [TRACK SELECT], and then pressing [CLEAR].



CONTRACT will destructively move triplet grid steps to their nearest standard grid counterpart before contracting.

8.5 EXPAND

EXPAND allows the user to destructively edit the data as if it were being played at 1/2 speed. Use this function by holding [DUPLICATE] and pressing [NUDGE]. Apply this function to a single track by holding [DUPLICATE], pressing the corresponding [TRACK SELECT], and then press [NUDGE].



Apply **DUP.PL**, **EXPAND**, or **CONTRACT** to a single track by holding and pressing a [Track Select] button before pressing the desired Special Function button.

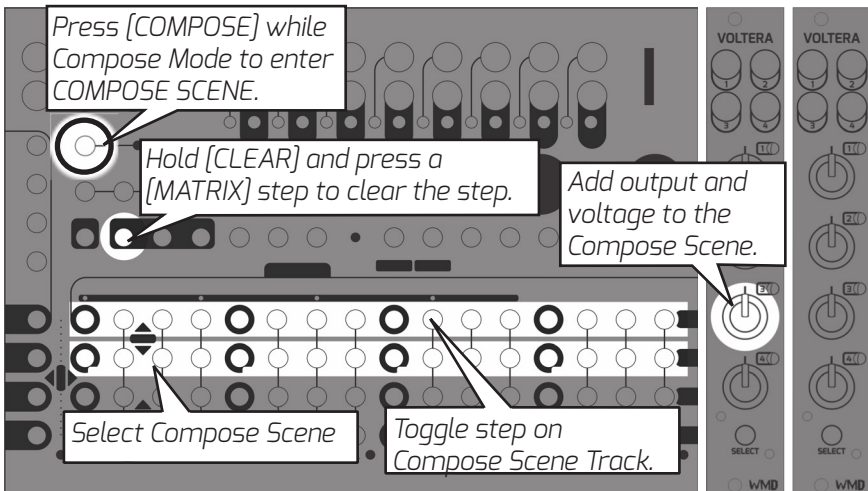
8.6 COMPOSE SCENE



Compose Scenes are 16 sequencable voltage presets for Voltera expanders.

Create a Compose Scene by holding any [MATRIX] button in row 2 and turning the [TRACK KNOB] associated with the output you would like to make a Compose Scene for. Holding this button will audition the scene on the selected outputs as long as the Compose Scene button is held.

Sequence these scenes by pressing the [MATRIX] buttons in row 1. The last select scene will be lit on row 2. This scene will be placed in the sequence when row 1 is pressed. Steps with scene data that is not the currently selected scene will show with a dim LED. Scenes will take priority when Scenes and Voltages are set on the same step.



9. SETTINGS

9.1 TEMPO AND SHUFFLE

Access Metron's Internal Clock settings by holding [TEMPO] and turning the encoders. ENCODER 1 changes TEMPO. ENCODER 2 changes SHUFFLE AMOUNT. Quickly set Metron back to 50% shuffle by pressing [ENCODER 2]. The clock input can also be switched between Internal and External in this mode by pressing [ENCODER 1].



The Internal Clock TEMPO, and SHUFFLE settings are saved with session memory. See MEMORY section 4.9 for more info.

9.2 GLOBAL SETTINGS

Metron offers a number of Global Settings that allow the user to further refine their experience while using Metron. Access Global Settings by pressing the [GLOBAL] button. Use ENCODER 2 to select the setting, and ENCODER 1 to change the setting's value.

**Default Setting*

ENCODER 2 = SELECTION	ENCODER 1 = VALUE
Clock Internal / External	Set the clock to Internal or External*
Character Format	Display time in decimal* (base 10) or hexadecimal (base 16 [0-F])
Step Count Direction	Steps and Bar counter count up or down
Brightness	A. High B. Med C. Low
Trigger Length	Time length of a single microstep. 1ms, 2ms, 4ms, 8ms, 1/36th clock, 1/12th clock*. Note: Triplet 1/12 this technically equal to 4/36th
Gate Delay	Some modules require voltage signals to receive ahead of gate signals in order for parameters to change correctly. Use this setting to delay Metron's gates in relation to Voltera signals to compensate for this issue. Set in increments of 5 microseconds. Max delay of 2ms.
PPQN	Clock "Pulses per quarter note" setting for both the clock input and output. 4, 8, 12, and 24 PPQN settings.
Clock Out Always	Yes or no to send clock output when sequencer is paused
Reset Input	Determines whether the reset input responds to a trigger*, or expects a din sync style start/stop signal to run. (Gate high = RUN)
Reset Output	<ul style="list-style-type: none"> • END* - sends a reset signal at the end of the variation. • RST - sends a trigger only when a Reset signal is received. • RUN - the output stays high. Pulses low when a reset signal is received. • PRE - Sends the reset signal slightly before step one, to be more compatible with other sequencers.
S. Bus Direction	Sets whether Metron will send or receive S.Bus Messages. 'IN' receives messages, 'OUT' sends messages, 'OFF' ignores S.Bus features.
Initialize Settings	Click the [ENCODER 1] to initialize the settings on the current project to default.
Firmware update	Click [ENCODER 1] to force Metron to update. Firmware file must be present on the SD card.
Version	Current Step Window shows the firmware version currently loaded.

9.2.1 VOLTERA SETTINGS

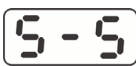






Voltera’s settings are also accessed in the global menu. These settings are saved per project.

For more information, see Voltera section.

Voltera track smoothing	While in the Global menu, select a voltera track by turning the correlated knob and press [ENCODER 1] to enable smoothing on that track.
Voltera knob input Range	While in the [GLOBAL] menu, turn a KNOB on Voltera to select that track and select a quantization setting. More info below.

9.3 VOLTERA KNOB INPUT RANGE

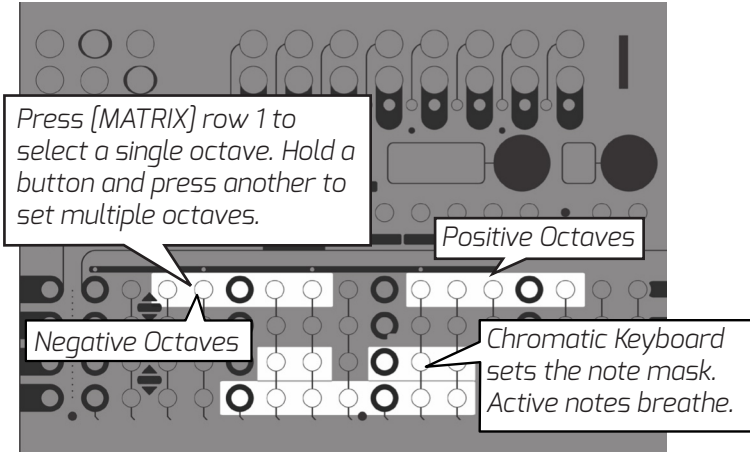
Voltera offers a number of knob input ranges for more detailed entry of control voltage data. Voltera’s outputs always offer a -5V to +5V voltage range. The sequence will play as it was written regardless of the current input range. Enter this mode by moving any Voltera knob while viewing Global Settings.

	-5V to +5V no quantization		-5V to +5V 12 tone quantize
	0V to +5V no quantization		0V to +5V 12 tone quantize
	-1V to +1V no quantization		-1V to +1V 12 tone quantize
			User Scale

**Default Setting*

9.4 VOLTERA USER SCALE

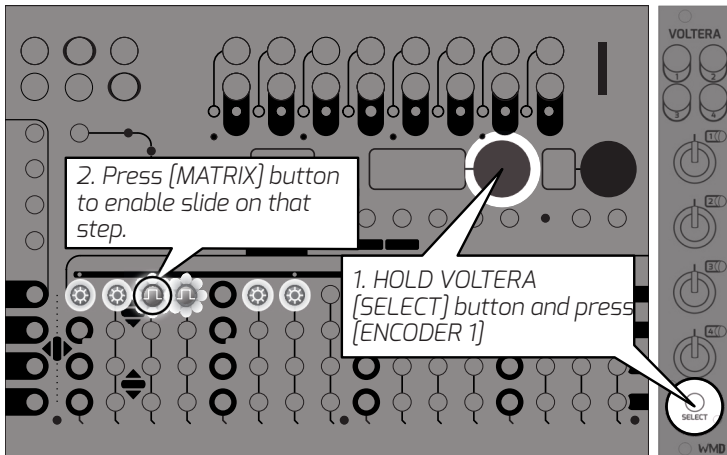
The Voltera user scale allows you to set a custom scale with a custom octave range per output. The user scale is saved and recalled on power up as well as when a session is saved or loaded. Active notes and octave ranges will blink with a breathing pattern.



9.5 VOLTERA PER STEP SLIDE

Voltera offers the ability to slide from one step to the next, similar to popular acid-style sequencers. To enter this display mode, HOLD the [SELECT] button on the Voltera you want to enable slides on and press [ENCODER 1].

Continue to hold [SELECT] and use the [MATRIX] buttons to enable a slide on the desired step for the desired Voltera track. Step led is lit to show voltage is enabled on that step and will blink to indicate slide is active.



10. ASSIGNABLE INPUTS

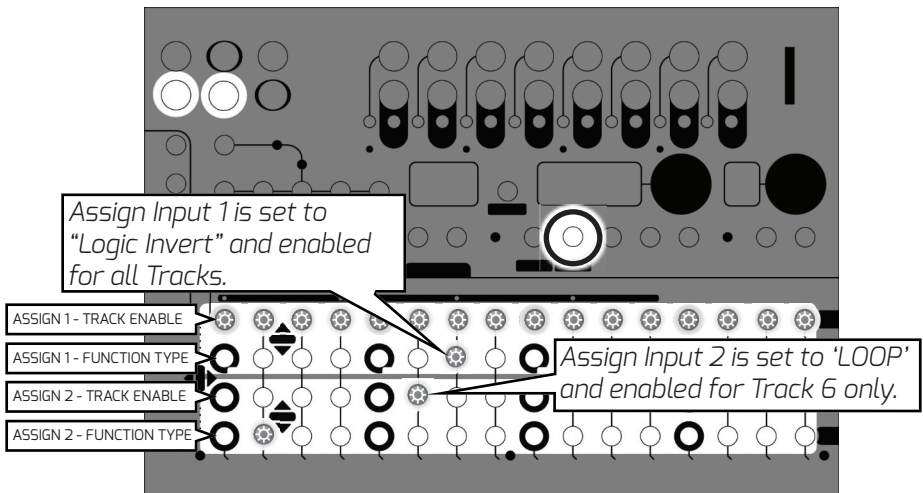
Assignable Inputs enable external interaction with Metron's sequencing.

Each Assignable Input can be assigned one of 16 different functions. These functions can be enabled or disabled on a per track basis.

Press the Global Settings button to display the assignable input functions and select functions using the MATRIX buttons.

Functions are triggered when an external signal is received through the assign in jacks.

In the example below, we are showing an assignable input setup for both assignable inputs.



In the above example, all step leds are lit on track 1, meaning all tracks will respond to the assignable input. On track 2, step led 7 is lit, coinciding with the label below for "Logic Invert". This means all tracks will now invert their behavior when a gate is high in assignable input 1.

Step led 6 is lit on track 3, meaning only track 6 will respond to the assignable input function. Led 2 is lit on track 4, coinciding with the label below for "LOOP". This means track 6 will loop when there is CV present at assignable input 2.

More info on loop and other assignable function behaviors below.



Both assigns can be completely disabled. When in this state, all enable buttons will be breathing.

Loop:

If Assign 1 and 2 are both set to loop, Assign 2 will act as a loop start offset. The voltage level on Assign 2 at the point the loop is enabled will be the new Q offset voltage for the loop.

Roll:

Roll start point is set when the roll is enabled. A new start point is not selected until the loop is disabled and re-enabled.



If Assign 1 and 2 are both set to loop, Assign 2 will act as a loop start offset.

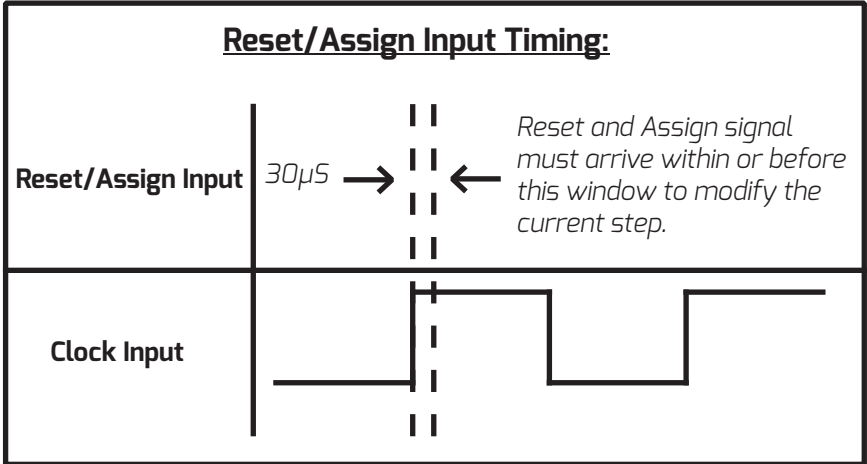
10.1 ASSIGN FUNCTIONS

See the chart on the next page for a full list of functions. Functions labeled (A) will take place as soon as they are triggered. Functions labeled (B) will be queued up to occur in sequence as soon as they are triggered. Functions labeled (C) will take place at the next clock step after they are triggered. Functions labeled (D) will be queued up to occur in sequence at the next clock step.

Assign Functions

ROLL (D)	CV Controlled Roll. 1V = 1/4 Note, 2V = 1/8 Note, 3V = 1/16 Note, 4V = 1/32 Note
LOOP (D)	CV Controlled Loop. 1V = 8 Steps, 2V = 4 Steps, 3V = 2 Steps, 4V = 1 Step.
RESET (A)	Resets enabled tracks.
ERASE (D)	Erases steps at the playhead for enabled tracks when the gate is high.
LOGIC OR (B)	Combines the gate at the ASSIGN input with the pattern on enabled tracks.
LOGIC AND (D)	Enabled tracks will not play anything unless the ASSIGN input is also high.
LOGIC INV (D)	When the gate is high, steps with data turn off. Steps without data play as triggers.
RANDOM (C)	Generate a random pattern on selected tracks when the gate goes high.
REC QUANTIZED (B)	Records any high gate on the ASSIGN input. Quantized to 16th notes.
REC UNQUANTIZED (B)	Records any high gate on the ASSIGN input at 48ppqn resolution.
NUDGE FORWARD(C)	Nudge all steps on enabled tracks to the right by one when the gate transitions high.
NUDGE BACK (C)	Nudge all steps on enabled tracks to the left by one when the gate transitions high.
NEXT VARIATION (C)	Trigger the next variation to play at the end of the current variation.
PREVIOUS VARIATION (C)	Trigger the previous variation to play at the end of the current variation.
INSTANT NEXT VARIATION (A)	Move to the next Variation immediately without resetting playheads.
INSTANT RETURN TO VAR A AND RESET (A)	Move to Variation A immediately and reset playheads.
DISABLE	Assign type LED is off, input is ignored

Key: (A) Rising edge immediate (C) Rising edge polled at clock
 (B) Real time polled (D) Polled at clock

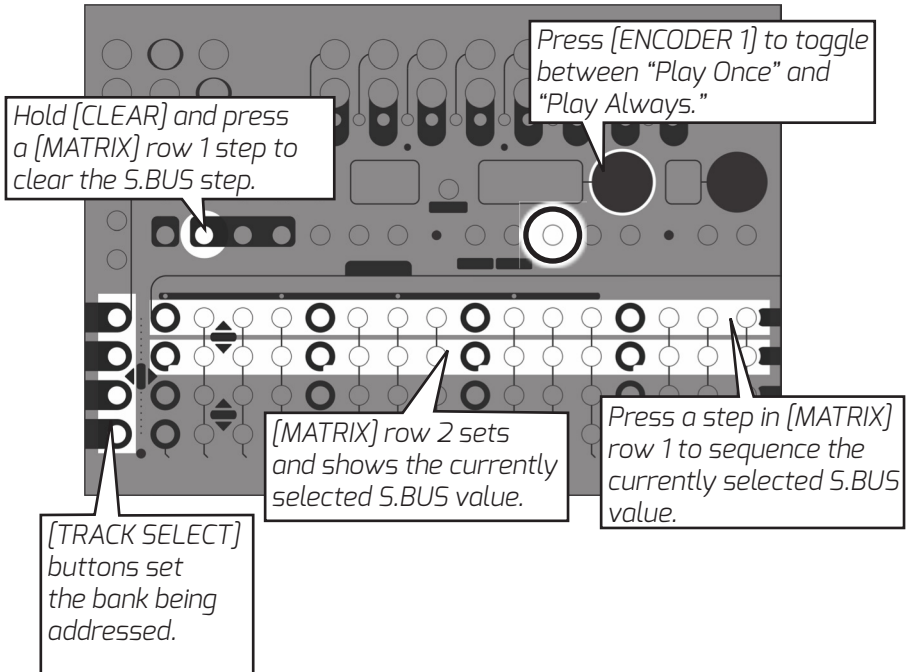


11. S.BUS

Metron has the ability to interact with modules that support the communication feature commonly referred to as Select Bus. Metron is capable of being a S.BUS master or slave, modifiable from Global Settings, accessed by pressing the [GLOBAL] button. When acting as a slave, Metron will recall one of the 64 memory sessions saved in your current project when it receives a change message.

The S.BUS feature reaches a new level of control when Metron is the master. Using the S.BUS mode accessed by pressing [S.BUS], the user can freely sequence change messages. One S.BUS track is available per variation.

This mode allows the user to send and sequence program change messages to compatible modules on the busboard.



The S.BUS sequence can be set to "Play Once" where it only plays on the first playback after a reset by pressing [ENCODER 1].

12. METRON SPECS

Dimensions:

Width: 36HP (182.75mm)

Height: Eurorack 3U (128.5mm Panel, 112mm PCB behind panel)

Depth Including Cables: 31mm

Power:

16 pin Eurorack standard power cable

90 Degree, Low Profile Connection

Reverse Polarity Protected

- *Do not connect power to expansion headers.*

Typical Power Consumption: +12V: 180mA, -12V: 0mA

Maximum Power Consumption: +12V: 240mA, -12V: 0mA

Start Up Time: 2.5 Seconds to splash screen, 6 seconds total

Inrush Current: 50mA

Inputs:

CLOCK IN, RESET IN: 100k Ω Impedance, Logic High, Schmitt Trigger, 2.2V Threshold

ASSGN1 IN, ASSGN2 IN: 124k Ω Impedance, 0V to 5V Analog

SyncBus normals to CLOCK IN, RESET IN jacks

USB Mini: for catastrophic bootloader reinstallation, not expected to be used

- *Norm/USB switch must be set to Norm for normal operation*

EXP (x2): Proprietary Expansion/Chain connector, 8 pins IDC

- *Must have EXP TERM on either header if unused*

- *Must have EXP TERM (x2) at both ends of chain if used*

Select Bus: 47k Ω Input Impedance, Buffered, Active Low. 3.3V and 5V



Do not connect power to expansion headers.

Outputs:

Channel Outputs 1-16: 470Ω Impedance, 0V or 10V Logic High.
Channels are simultaneously updated
Channel LEDs reflect real-time output state
CLOCK OUT, RESET OUT: 470Ω Impedance, 0V or 10V Logic High.
Select Bus: 50Ω Output Impedance, Active Low, 47kΩ Pull Up.
3.3V and 5V compatible. Software Selectable inbound.

Regulatory:

RoHS, CE, & WEEE Compliant
Made with Lead Free solder and processes.
No animals were harmed in the making of Metron.

Warranty:

All products manufactured by WMD are warranted to the original purchaser/consumer, to be free from defects in material and workmanship for a period of one (1) year from date of invoice. The product must be sold by an authorized WMD dealer. Warranty will include labor and materials when proper use, application and maintenance procedures are followed. You can contact the WMD service department at service@wmddevices.com. WMD will have no obligation whatsoever under this warranty, with respect to any of the following: Equipment that is (i) not used or maintained in a normal and proper manner, in accordance with all manuals and instructions; and (ii) Equipment that is modified, altered or repaired without the prior written approval of WMD. THE WARRANTY STATED HEREIN IS PERSONAL TO THE ORIGINAL PURCHASER AND WMD MAKES NO OTHER WARRANTIES OR REPRESENTATIONS WITH RESPECT TO THE EQUIPMENT FURNISHED HEREUNDER AND DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ABOVE WARRANTY SHALL CONSTITUTE BUYER'S EXCLUSIVE REMEDY WITH RESPECT TO THE EQUIPMENT FURNISHED HEREUNDER.

13. CREDITS

The font family used in this manual is EXO, designed by Natanael Gama.

The WMD logo is derived from Cocaine Sans, designed by Christopher Hansen.

14. GLOSSARY

The terms here may be applied in specific ways for this module. They are defined as such to avoid confusion with the “dictionary definition” one might find elsewhere.

BLINKING: When the LED quickly turns off and on as if controlled by a square wave.

BURST: Multiple triggers sent per step, creating a “ratchet” like sound.

BREATHING: When the LED cycles slowly on and off as if controlled by a triangle wave.

LATENCY: Time delay between when a signal is received and when it is processed.

MATRIX: The panel of 64 buttons that takes up the lower section of the sequencer’s panel. These buttons are used to activate steps and control different features throughout.

PLAYHEAD: A term for the virtual cursor keeping track of the sequencer’s position in time, regardless of the visual cursor’s position.

POLLED: To check (devices, such as several computer terminals sharing a single line) in sequence for messages waiting to be transmitted.

RISING EDGE: Rising edge means the event will only occur if the voltage goes from 0V to 3V or above. If the gate stays high, the event will not re-trigger until it goes low and comes back up.

ROOT: Files stored in the “root” of a memory card that have no enclosing folder. The settings file is stored here as it applies to all project folders.

SCENES: Essentially, these are presets of track mute settings that can be recalled at any time.

SESSION: Refers to all of the data contained within one of Metron’s 64 save slots. A session contains the pattern data for 5 variations, 16 Mute Scenes, and settings for Internal Clock and Assign Input.

VARIATION: A pattern stored on METRON is referred to as a variation. When loaded into a variation slot, these can be played, viewed, and edited at any time.

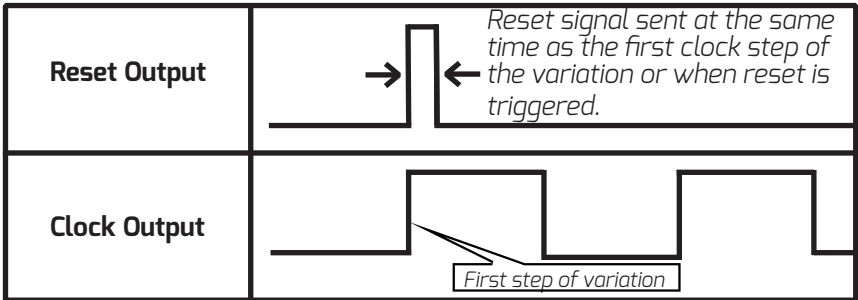
15. APPENDIX

More technical specifications about Metron.

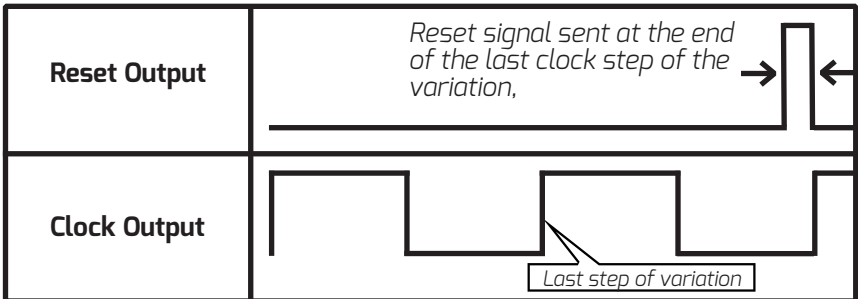
15.1 Reset Output Behavior

See graphics below for explanation of reset output timing.

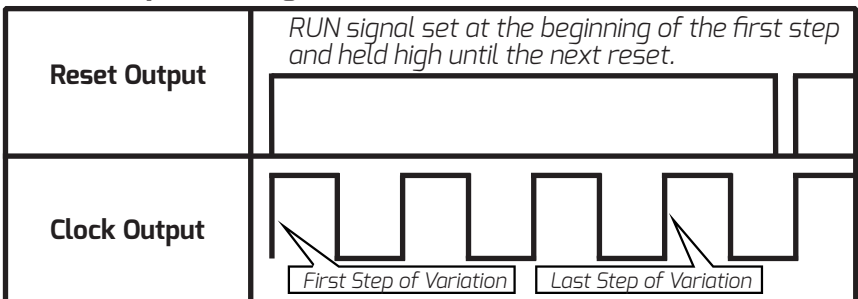
Reset Output Timing - END / RST



Reset Output Timing - PRE



Reset Output Timing - RUN



15.2 Gate Delay Behavior

See graphics below for explanation of reset output timing.

Gate Delay

