

# VM15 Streamer V3.33.6 User's Guide

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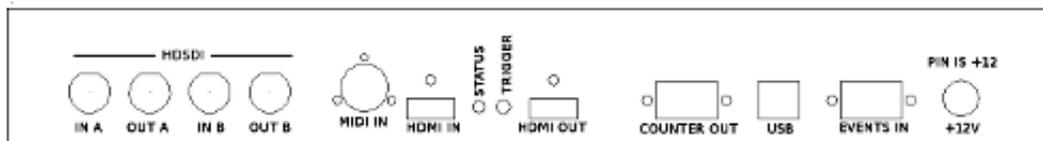
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## 1. DESCRIPTION OF THE VM15

- The VM-15 Streamer inserts streamers and punches into SDI and HDMI video.
- It generates audio beeps on the punches.
- It can be triggered from a number of sources- closures, MIDI, LTC lists, or from the graphical user interface.
- It converts SDI to HDMI and HDMI to SDI.
- It has a LTC window display.
- It has a Rehearse/Record/Playback text display that can be selected from MIDI.
- It has a cue sheet that can put text on screen or export .MID files to trigger streamers and put text on screen.
- GUIs for Intel Mac OS 10.5 and greater and for Windows are available at <http://endpointonline.com>.

VM-15 REAR VIEW



## 2. QUICK START

### 2.1 Install the FTDI USB driver

- Get the USB driver for your Mac or Windows computer from <http://www.ftdichip.com/Drivers/VCP.htm>.
- Install it.

### 2.2 Get the GUI

- Get the GUI for your Intel Mac OS 10.5 or greater or Windows computer at <http://endpointonline.com/VM-15.htm>.
- Unzip the executable.
- Put it in a convenient location.
- Make a shortcut to it.

### 2.3 Connect the VM15

- The 'universal' AC supply has a number of adapter plugs for different territories. Connect power, 9-12V DC.
- Connect your computer to the VM15 with a USB cable.
- Wait for the VM15 to be found by the USB system. Run the GUI. The dialog title will indicate the VM15 USB serial port or a 'not found' indication. *Try a second time if not found.*
- Connect a HDMI or HDSDI monitor. A gray ramp pattern should display. Trigger a streamer with the 'Trigger' button. The 'Status' indicator flutters while the streamer is active.
- Connect a HDMI or HDSDI source. The 'Status' indicator should stop blinking. The input signal should appear on the display. There may be some settling time as clocks lock.
- Trigger a streamer with the 'Trigger' button.

### 2.4 Buttons and indicators

- Press the front panel 'Trigger' button quickly several times to trigger multiple streamers.

The rear panel trigger button triggers both streamer 1 and punch 1.

The status indicators on front and back flutter while streamers are active.

The 'Status' indicator blinks if there is no input, and goes steady if there is an input.

### **3. Warranty and program updates**

#### **3.1 Warranty**

The VM15 warranty is 1-year parts and labor. Customer pays shipping.

#### **3.2 Updates**

Current GUIs are available at

<http://endpointonline.com/VM-15.htm>.

The current firmware and micro controller updates are available at our ftp site:

- url: <ftp://www.endpointonline.com>
- user name: [vm15@endpointonline.com](mailto:vm15@endpointonline.com)
- password: vm15

### **4. INSTALLATION**

#### **4.1 Power**

The 'universal' 120-240 VAC supply has a number of adapter plugs for different territories.

- Select the appropriate adapter.
- Connect the 9-12 VDC supply to the VM15.
- After a few seconds, the 'Status' indicator will start to blink and will continue to blink if there is no input. It will go steady when there is an input.

#### **4.2 Cooling**

The voltage regulators are heat sunk to the bottom of the case.

- ✓ Leave an air space below the unit for cooling.

## 5. DVI/HDMI SETUP

### 5.1 EDID

The EDID table in the monitor describes the monitor's capabilities. It is transmitted to the host on power up or connection. The VM-15 stores the last EDID in FLASH so that even if the monitor is not powered up the host gets the correct EDID. The VM-15 default EDID is from a Dell 24" 1920 x 1080 monitor.

To avoid EDID misreads the first time a particular monitor is used power up the monitor and VM-15 before connecting to the host. Alternately, refresh the monitors on your computer after changing monitors.

### 5.2 *Distribution systems that block EDIDs*

*If a monitor is detected but no EDID is returned after a timeout, HDMI output is turned on and the default EDID is used.*

- To set the default EDID, connect the VM-15 directly to the device that you wish to be the default.
- Cycle the VM-15 power and wait at least 15 seconds. The device EDID will be stored in VM-15 FLASH.

## 6. CONNECTORS AND PIN-OUTS

### 6.1 HDMI

#### 6.1.1 In/out HDMI

### 6.2 SDI

#### 6.2.1 A in/out BNC

4:2:2 SDI in and out.

#### 6.2.2 B in/out BNC

Not used as of release 3.27.

### 6.3 COUNTER OUT 9 PIN D

Pin	Signal	Notes
1	GND	
2	N/C	
3	TX+	RS422 TX+ to counter
4	N/C	
5	N/C	
6	N/C	
7	N/C	
8	TX-	RS422 TX- to counter
9	GND	

### 6.4 EVENTS IN 9 PIN D

Pin	Signal	Notes
1	Punch 2	
2	Punch 1	
3	Streamer 2	Immediate streamer trigger of streamer 2 only
4	Streamer 1	Delayed streamer trigger, multiple streamer trigger
5	Pop/LTC	Pop/ LTC trigger input, 100mv to 2V RMS
6	GND	
7	GND	
8	GND	
9	GND	

## 6.5 BEEPS OUT RCA

The beeps output is single ended, approximately 800hz and 1 volt peak to peak. If enabled in the GUI, it is active at the same time and for the same duration as the punch.

## 6.6 MIDI in

pinout credit: [http://www.interfacebus.com/PC\\_MIDI\\_Pinout.html](http://www.interfacebus.com/PC_MIDI_Pinout.html)



**MIDI Pin Out**

Pin No.	IN Signal Name	THRU Signal Name	Out Signal Name
1	No Connect	No Connect	No Connect
2	No Connect	Shield	Shield
3	No Connect	No Connect	No Connect
4	IN+	+5v	+5v
5	IN-	IN	IN

## **7. SUPPORTED FORMATS**

### **7.1 SDI**

7.1.1 SMPTE 259

480i 29.97hz, 25hz

7.1.2 SMPTE 274

(1080p x1920) PsF 30, 25, 24 FPS

7.1.3 SMPTE 295

(1080i x 1920) 25 FPS

7.1.4 SMPTE 296

(720p x 1280) 60, 50, 30, 25, 24 FPS

### **7.2 HDMI**

***The maximum HDMI resolution is 1920 x 1200 60P.***

## 8. OPERATIONAL FEATURES

### 8.1 Streamer

#### 8.1.1 Streamer and end bar color

- Use the palette to set the streamer and end bar colors.
  - ✓ The Mac GUI has a Mac color palette for each item.
  - ✓ The Windows GUI has a palette in the upper left.
- Clicking on a color sets the cursor to the 'hand' cursor. Click that on the color box of a streamer to set its color.

#### 8.1.2 Width

The GUI width slider on the streamer tab sets the width.

#### 8.1.3 Rate

The GUI rate up/down control on the streamer tab sets the streamer rate in seconds.

#### 8.1.4 Delay

The GUI delay up/down control on the streamer tab sets the streamer delay in seconds. The streamer closure must be held this long to trigger the streamer. With ProTools the PLAY closure is used with a 4 second delay and a 2 second streamer for a total preroll of 6 seconds.

#### 8.1.5 Multiple streamers

Up to 4 streamers may be active at once.

#### 8.1.6 Transparency

The GUI transparency slider on the streamer tab sets the transparency of the streamer.

#### 8.1.7 Stubby streamers

The GUI top and bottom sliders on the streamer tab set the top and bottom of the streamer.

#### 8.1.8 End punch

Check the GUI 'end punch' check box to trigger a punch at the end of the streamer. Streamers 1-4 trigger punches 1-4.

### 8.2 Punch/Beeps

#### 8.2.1 Color

- Use the palette to set the punch colors.
  - ✓ The Mac GUI has a Mac color palette for each item.
  - ✓ The Windows GUI has a palette in the upper left.
- Clicking on a color sets the cursor to the 'hand' cursor.  Click that on the color box of a punch to set its color.

#### 8.2.2 Reverse video

Punches may be done as reverse video rather than in color by checking the GUI check box.

#### 8.2.3 Size

Set the punch size using the GUI 'size' slider.

### **8.2.4 Duration**

Set the punch/beeps duration frames using the GUI 'duration frames' up/down control.

### **8.2.5 Repeat count**

Set the punch/beeps repeat count using the GUI 'repeat count' up/down control. For ADR the typical setting is 2 repeats. This is the number of punch/beeps after the initial punch/beep.

### **8.2.6 Repeat seconds**

Set the punch/beeps repeat seconds using the GUI 'repeat seconds' up/down control. For ADR the typical setting is .66 seconds.

### **8.2.7 Enables**

There are individual enable check boxes for punch and beeps.

## **8.3 Annunciator**

- Select one of the Rehearse/Record/Playback radio buttons to make the annunciator visible.
- Move the annunciator window in the GUI positioning graphic to position it. The size, foreground and background colors may be set in the GUI.
- The PLAYBACK annunciator inhibits streamers, punches, and text overlay.

## **8.4 LTC window**

Check the LTC window 'visible' checkbox or move the LTC window in the GUI positioning graphic to make the LTC window visible. The size, foreground and background colors may be set in the GUI.

## **8.5 Picture only during cue**

'Picture only during cue' outputs black when not in the cue. This checkbox works only when triggering from LTC lists, there is an 'end' timecode as the second entry in the cue, and the annunciator is selected to Rehearse, Record, or Playback.

## **8.6 Picture when stopped**

The 'Picture when stopped' checkbox defeats 'Picture only during cue' when stopped.

## 9. TRIGGERING

### 9.1 Closures

Closures to GND on the Events connector trigger events, see the Events pinouts 6.4.

- The streamer 1 closure is used to trigger multiple streamers. If there is a non-zero streamer delay, the streamer 1 closure is a held closure and the streamer is delayed by that number of seconds.
- Releasing the held closure prior to the delay cancels the streamer.

### 9.2 MIDI

MIDI notes trigger events.

- See the MIDI tables 11.1,2 for the mapping of notes and velocities to events.
- See the ProTools MIDI Application Note (see application notes, section 13) for more information about MIDI trigger tracks.

### 9.3 LTC

The LTC reader can trigger events.

LTC lists are text or pdf files (extension typically .txt) with one or two timecodes per line.

- Load the list to the cue sheet by dropping the file on the cue sheet window.
- Send the cue sheet to the VM15 with the 'send in/outs' button.
- Reading LTC sets the GUI to LTC triggering. The first timecode will trigger a streamer if the GUI is set to pop triggering. There may be up to 1023 cues in the list sent to the VM15.
- **A cue example with an in and optional out would be**  
01:00:00:00 01:00:10:00

### 9.4 Pop

Pops can trigger events.

- Pops must be 500hz-2Khz and at least 10 cycles long.
- Set the GUI to pop triggering (not LTC triggering).

### 9.5 GUI

The GUI is used to trigger events to check the setup.

- Clicking the color boxes will trigger streamers or punch/beeps.
- The streamer 'trigger' button triggers multiple streamers.

## 10. CONVERSIONS

### 10.1 SDI to HDMI

See the conversion table below for currently supported conversions.

### 10.2 HDMI to SDI

See the conversion table below for currently supported conversions. This was tested using a VM15 as the HDMI source at 148.5 mhz or 148.5/1.001 mhz. If your source is not within 20ppm of these frequencies the conversion may not be received correctly by SDI equipment.

### 10.3 Conversion tables

SMPTE formats	hdmi->hdmi	hdmi->sdi	sdi->sdi	sdi->hdmi
SMPTE_260M_1035i_30_Hz	Note 1	Note 1	ok	Note 1
SMPTE_295M_1080i_25_Hz	Note 1	Note 1	ok	Note 1
SMPTE_274M_1080i_or_1080sF_30_Hz	ok	ok	ok	ok
SMPTE_274M_1080i_or_1080sF_25_Hz	ok	ok	ok	ok
SMPTE_274M_1080p_30_Hz	ok	ok	ok	ok
SMPTE_274M_1080p_25_Hz	ok	ok	ok	ok
SMPTE_274M_1080p_24_Hz	ok	ok	ok	ok
SMPTE_296M_720p_60_Hz	ok	ok	ok	ok
SMPTE_274M_1080sF_24_Hz	ok	ok	ok	ok
SMPTE_296M_720p_50_Hz	ok	ok	ok	ok
SMPTE_296M_720p_30_Hz	Note 1	Note 1	ok	Note 1
SMPTE_296M_720p_25_Hz	Note 1	Note 1	ok	Note 1
SMPTE_296M_720p_24_Hz	Note 1	Note 1	ok	Note 1
SMPTE_259M_480i_30_Hz	ok	ok	ok	ok
SMPTE_259M_480i_25_Hz	ok	ok	ok	ok

1) conversion not implemented.

# 11. MIDI TABLES

## 11.1 Note on

Note On	Note #	Command
G8	127	Streamer 4
F#8	126	Streamer 3
F8	125	Streamer 2
E8	124	Streamer 1
D#8	123	Punch 4
D8	122	Punch 3
C#8	121	Punch 2
C8	120	Punch 1
B8	119	accumulating streamer trigger (same as closure on 'Events In')
A#8	118	End Bar (used for setting color only)
A8	117	Velocity selects annunciator message, see annunciator table
G7	116	Deprecated 3.33.3 (was annunciator background)
F#7	115	Deprecated 3.33.3 (was annunciator foreground)
F7	114	Playback annunciator colors, see table 11.4
E7	113	Record annunciator colors, see table 11.4
D#7	112	Rehearse annunciator colors, see table 11.4

## 11.2 Velocity

Velocity	Action
0	No action (MIDI Note Off command)
1	Set selected streamer/punch color to white, trigger
2	Set selected streamer/punch color to yellow, trigger
3	Set selected streamer/punch color to cyan, trigger
4	Set selected streamer/punch color to green, trigger
5	Set selected streamer/punch color to magenta, trigger
6	Set selected streamer/punch color to red, trigger
7	Set selected streamer/punch color to blue, trigger
8	Set selected streamer/punch color to black, trigger
9	Set selected punch color to reverse video, trigger
All others	Trigger

## (11. MIDI TABLES , continued)

### 11.3 Annunciator

Note that the PLAYBACK annunciator inhibits streamers, punches, and text overlay. Turn off the PLAYBACK annunciator if you want to do manual triggers.

Velocity	Annunciator message
0	No action (MIDI Note Off command)
1	off
2	'Rehearse'
3	'Record'
4	'Playback'

### 11.4 Annunciator colors

add the background color and foreground color values together, send as the velocity. '00', white on white, is ignored because it is a MIDI Note Off command.

Velocity	Background color
0	white
8	clear
16	yellow
32	cyan
48	green
64	magenta
80	red
96	blue
112	black

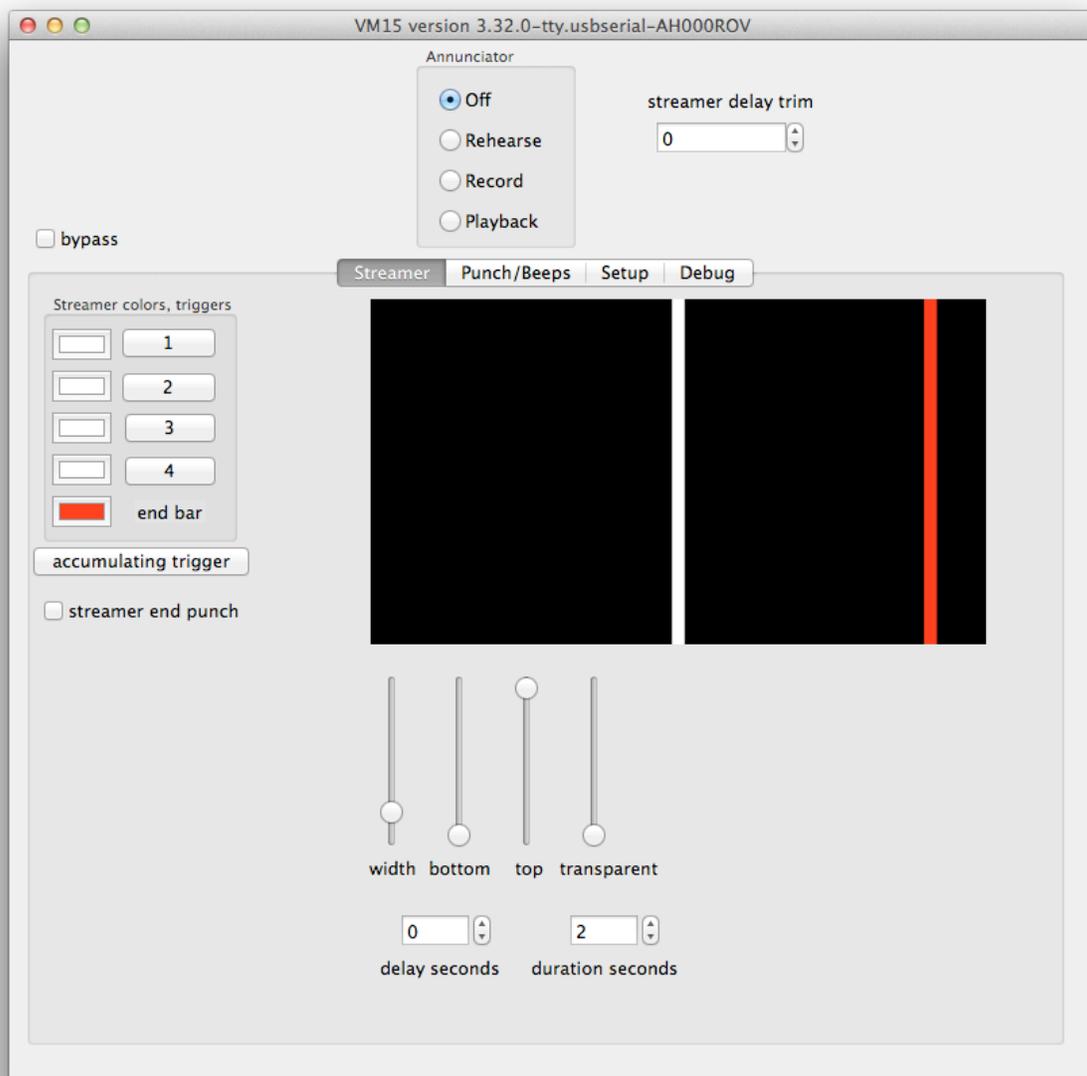
Velocity	Foreground color
0	white
1	yellow
2	cyan
3	green
4	magenta
5	red
6	blue
7	black



## 12. MAC GUI

- The GUI version and the USB COM port print in the title bar.
- If there is no VM15 connected, 'VM15 not found' prints in the title bar.
- The GUI has a bypass checkbox that defeats all of the various overlays.
- The 'Annunciator' group box selects annunciator text.
- The 'streamer delay trim' adds to the streamer delay.
- See the 'ProTools play closure method' app note 13.1 for a case where streamer delay is used.

## 12.1 Streamer tab



### 12.1.1 Streamer colors, triggers

The palettes set the color of each streamer. The trigger buttons trigger individual streamers.

### 12.1.2 Accumulating trigger

The 'accumulating trigger' button triggers successive streamers.

### ***12.1.3 Streamer end punch***

If 'streamer end punch' is checked, punches 1-4 trigger at the end of streamers 1-4.

### ***12.1.4 Width/bottom/top/transparent sliders***

The sliders set the width, bottom, top, and transparency of the streamers.

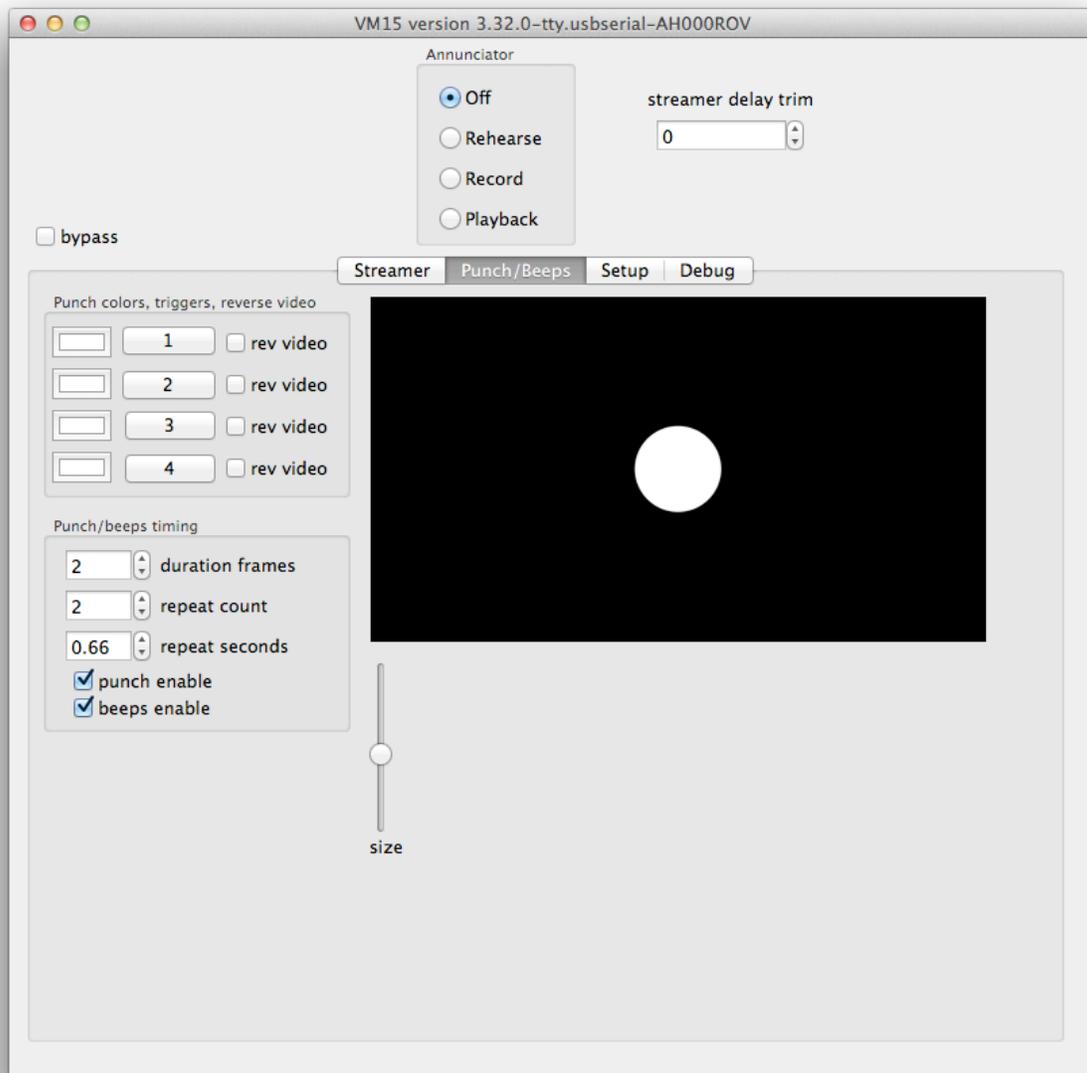
### ***12.1.5 Delay seconds***

The 'delay seconds' up/down control is used for applications with a held play closure. See the 'ProTools play closure method' application note.

### ***12.1.6 Duration seconds***

The ' up/down control has a range of 1-4 seconds.

## 12.2 Punch/Beeps tab



### 12.2.1 Punch colors, triggers, reverse video

- The palettes set the color of each punch.
- The trigger buttons trigger individual punches.
- The 'rev video' check box displays punches as reverse video, overriding the color.

### ***12.2.2 Punch/beeps timing***

- The 'duration frames' up/down control sets the duration of the punch/beep.
- The 'repeat count' up/down control is the number of times the punch/beep repeats after the initial punch/beep.
- The 'repeat seconds' up down control sets the repeat interval.
- The 'punch enable' and 'beep enable' check boxes enable punches and beeps.

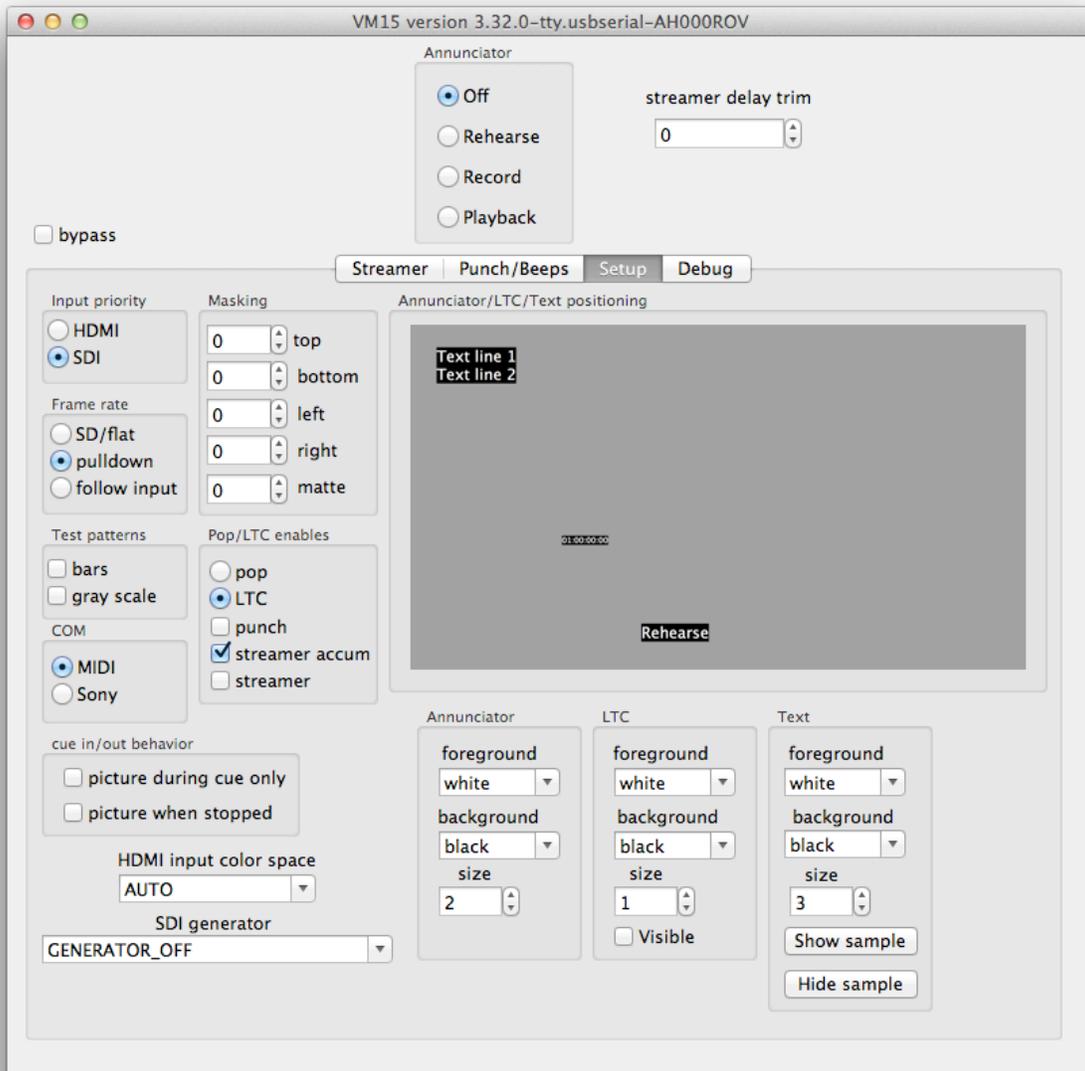
### ***12.2.3 Size***

The 'size' slider sets the size of the punch.

### ***12.2.4 Positioning***

The positioning graphic sets the punch position by dragging with the mouse.

## 12.3 Setup tab



### 12.3.1 Input priority

If both inputs are present, this control selects which one is used. If one input is present, it is used.

### 12.3.2 Frame rate

**The VM15 locks to SDI faster if the frame rate is set to match the input. If set to 'follow input' lock may take a few seconds longer.**

### **12.3.3 Test Patterns**

The 'bars' check box generates bars. The 'gray scale' check box generates a full range gray scale.

### **12.3.4 Masking**

Masking is in pixels. Different masks may be set for top, bottom, left and right. The 'matte' up/down control sets the transparency of the black mask.

### **12.3.5 Pop/LTC enables**

The pop/LTC radio buttons select the type of input for triggering. The 'punch', 'streamer accum', and 'streamer' check boxes select what will be triggered. 'Streamer' does not retrigger until the current streamer completes. 'Streamer accum' triggers multiple streamers.

### **12.3.6 Annunciator/LTC/Text**

Drag the annunciator, LTC or text windows to the desired position. The annunciator, LTC and text windows have similar controls, a foreground and background color and a size. The annunciator is made visible by selecting 'Rehearse', 'Record', or 'Playback' in the Annunciator group box. LTC is made visible with the 'Visible' check box. A text sample may be displayed with the 'Show sample' button or hidden with the 'Hide sample' button.

### **12.3.7 Cue in/out behavior**

LTC lists have an in and optional out time. The lists are .txt files with the first timecode in the line of text being the in and the second timecode being the out. If the list has in and out times, the 'picture during cue only' check box displays black outside the cue. The 'picture when stopped' check box defeats 'picture during cue only' when stopped.

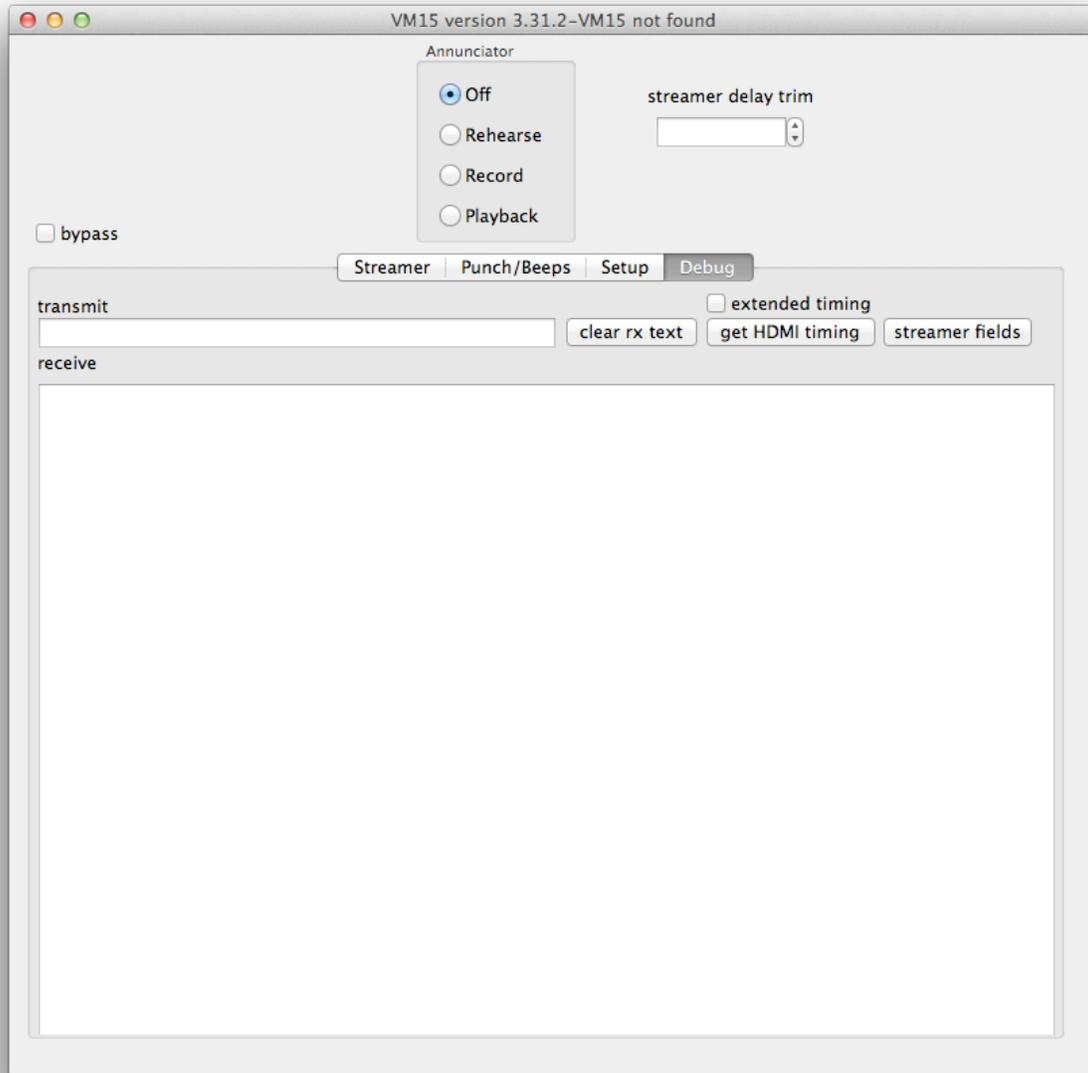
### **12.3.8 SDI generator**

The VM15 can generate various SMPTE standard rates for testing monitors. This setting is not retained and the VM15 reverts to 'generator off' on power up.

### ***12.3.9 HDMI input color space***

HDMI color space 'auto' is the normal setting. The color space can be set manually if color space information is not available in the HDMI input.

## 12.4 Debug tab



### **12.4.1 Transmit**

The VM15 uses text commands. This window is used to send those commands manually.

### **12.4.2 Receive**

This window shows the text coming back from the VM15.

### **12.4.3 Clear rx text**

Clear the rx text window.

#### ***12.4.4 Get HDMI timing***

Get HDMI timing parameters.

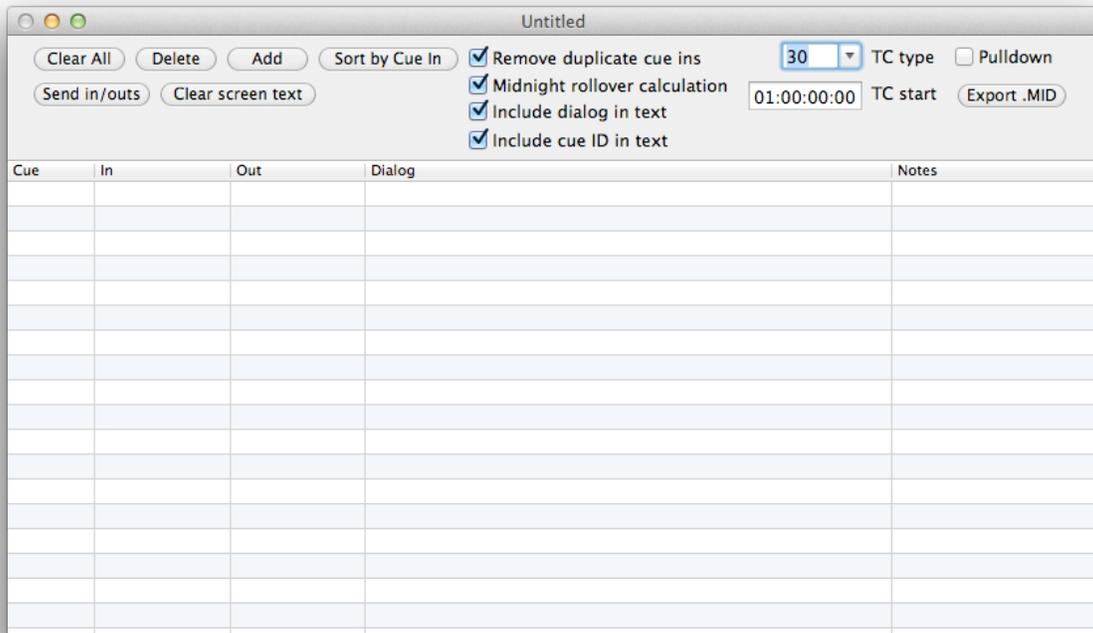
#### ***12.4.5 Extended timing***

If checked, 'get HDMI timing' gets extended timing parameters.

#### ***12.4.6 Streamer fields***

Get the count in fields of the last streamer.

## 12.5 Cue sheet window



Drop .txt or .pdf cue sheets on the window to load the cue sheet. Items may be added manually with the 'Add' button. Cue sheet entries are formatted as one or two timecodes followed by the cue text. Text may be up to 250 characters per cue. To insert a newline in the text, use the 2 characters `\n`. An example of cues that can be successfully dropped on the cue sheet window:

```
01:00:00:00    this cue has an in but no out
01:01:00:00 01:01:02:00    this cue has an in and an out
01:01:05:00    this cue\nhas two lines of text
```

select a row to display the text and send the in and out timecodes to the VM15. To clear text, press 'Clear screen text'.

The 'In' and 'Out' data can be entered with or without colons. Pressing RETURN or ENTER inserts the colons.

PDF formats supported in 3.31.2 or greater: Fairlight, EdiCue, and raw text.

3.32.0 and greater (with the associated firmware and micro updates) support ASCII and Unicode Latin 1 script. Refer to: <http://unicode.org/charts/PDF/U0080.pdf>.

### **12.5.1 Clear All**

Clear the cue sheet.

### **12.5.2 Delete**

Delete the selected cue.

### **12.5.3 Add**

Add a cue to the end. The cue can then be edited by clicking in the cells.

### **12.5.4 Sort by Cue In**

Sort the cues. Do this if you add cues that are not in time order.

### **12.5.5 Remove duplicate cue ins**

Remove cues with duplicate starts when 'sort by cue in' is done.

### **12.5.6 Midnight rollover calculation**

Sort accounting for midnight rollover when 'sort by cue in' is done.

### **12.5.7 TC type**

Set the TC type used for MIDI export.

### **12.5.8 TC start**

Set the TC start used for MIDI export.

### **12.5.9 Export .MID**

Export a MIDI file. The streamer duration is used for the offset. The TC type and TC start are used for calculating the MIDI events. The cue sheet is sorted on export of MIDI. The text prints when the streamer starts, and stays on screen.

### **12.5.10 Pulldown**

Check to set beats per minute to 119.88. This is for pulled down frame rates like 23.976 and 29.97.

### **12.5.11 Include dialog in text**

Check to include dialog in text for MIDI export or for display.

### **12.5.12 Send in/outs**

Send the cue in and out timecodes to the VM15. The out is optional.

### **12.5.13 Clear screen text**

Clear any cue text that has is displayed on screen.

#### ***12.5.14 Include cue ID in text***

Check to include cue ID in text for MIDI export or for display.

## **12.6 Windows GUI differences**

The Windows GUI has a single graphic for positioning the annunciator, LTC, punch, and showing the streamer end bar color and streamer width. It has a tab for the cue sheet, while the Mac GUI has a separate window for the cue sheet.

## 13. APPLICATION NOTES

### 13.1 MIDI test setup

MIDI was tested using ProTools 9 running under Windows 7 with an M-Audio 'Midisport Uno' 1x1 USB to MIDI converter.

- Connect the 'out' MIDI connector to the VM-15 MIDI input.

Any program that generates MIDI notes and velocities can be used for this test.

*For Protools, the procedure is:*

- Add an instrument (called 'streamer' for this test) to the ProTools menu item 'Setup/MIDI/MIDI Studio Setup'.
- Select the Output Port to be your USB to MIDI interface.
- Select Send Channel 1.
  
- In the Mix window, select the MIDI track channel strip output to be 'streamer'.
- Open the MIDI Editor.
- Enable 'Play MIDI notes when editing'.

The MIDI keyboard should trigger streamers and punches per the MIDI command table.

### 13.2 PROTOOLS

#### 13.2.1 Play closure method

*Streamer triggers from ProTools Sync HD connector pinout*

Signal	Sync HD 25 pin D	VM-15 9 pin D
GPOUT0_A	3	4 (Streamer 1)
GPOUT0_B	4	8 (GND)

#### *ProTools test setup*

The ProTools PLAY closure is GPOUT0. Typical operation is to set a preroll of 6 seconds for ProTools, a 4 second streamer delay, and a 2 second streamer.

- Roll ProTools.
- After the streamer delay, the streamer will trigger.
- Stopping ProTools before the streamer has triggered cancels the pending streamer.

### **13.2.2 MIDI track method:**

**credit:** *Derek Casari at Fox Studio provided this setup.*

10. Setup\MIDI\Midi Studio
20. USB UNO [or otherwise] Interface if installed properly will be visible
30. Click "Add Device", name it "Streamer"
40. Click on "OUT" arrow of UNO [or other MIDI interface] and drag it to "IN" arrow of "Streamer" device added in above step. Close AMS [Apple MIDI Setup]
50. In Pro Tools: Add "Track", "MIDI track"
60. Click on the MIDI track just created.
70. View\Edit Window Views\Real Time Properties
80. In the MIDI track
  - click on "DLY",
  - change to "-" [Advance], change timebase to "ms",
  - make the value 2000 [duration of streamer]
90. In bottom left time base select should be "samples"
100. To enter streamer values:
  - Locate to a point where a streamer is desired.
  - Change view to "notes".
  - On the keyboard, click on the note value B8, say at 59:30:00. (This becomes a template value.)
  - Switch back to "Regions" view.
  - Select the region where you have placed the streamer note above, hit CMD + C [copy], locate to next streamer point, and CMD + V [paste].
  - Repeat for the multiple streamer points desired.

### **13.2.3 Pop track method**

This method is similar to the MIDI track method but uses an audio pop track. Pops must be 500hz-2Khz and at least 10 cycles long. See the Events connector table (section 6.4) for audio pop connections.

# 14. SONY PROTOCOL COMMANDS

Sony protocol is 38400 baud, odd parity, one stop bit.

## 14.1 10 11 device type request

Responses to device type request:

Code type	Device type
24	0x02b2
25	0x01b2
29.97/30	0x00b2

## 14.2 40.10 mark in

- Use the current LTC reader position as the cue in point.

## 14.3 40.11 mark out

- Use the current LTC reader position as the cue out point.

## 14.4 44.14 in preset

- Set the cue in point from data.

Send bytes:

Byte	0	1	2	3	4	5
Value	0x44	0x14	Frames	Minutes	Seconds	Hours

## 14.5 44.15 out preset

- Set the cue out point from data.

Send bytes:

Byte	0	1	2	3	4	5
Value	0x44	0x15	Frames	Minutes	Seconds	Hours

(14. Sony protocol commands, continued)

**14.6 61.0c current time sense**

- Return the LTC reader position.

**Send bytes:**

Byte	0	1	2
Value	0x61	0x0c	N/A

**Receive bytes:**

Byte	0	1	2	3	4	5
Value	0x74	0x04	Frames	Minutes	Seconds	Hours

**14.7 61.20 status sense**

- Return status bytes. Only bytes 1 and 2 have data, all other bytes are zero. Unused bits are zero. 'PLAY' and 'LOCK' are set if the LTC reader has valid input, 'STOP' is set if not.

Bit	7	6	5	4	3	2	1	0
Byte 1			STOP					PLAY
Byte 2	LOCK							

