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## 1. Introduction

Follow these steps to set up your Versa™ TUBE system.

- Set up tubes and connect cables
- Connect the computer and Versa DRIVE
- Create a pixel map
- Address the Buffer Box
- Test

More detailed information can be found for any topic in the separate manuals for each product.

## 2. Versa TUBE Assembly & Cabling

1. Assemble and mount the tubes in the desired layout.
2. Power Cabling
  - a. Each tube has a 2-pin input (male) and output (female) JYC connector for AC power.
  - b. Connect the AC Power input on the first tube to your local AC power source. This requires a cable with a male plug that matches your local power outlet.
  - c. Connect each 2-pin female JYC to the 2-pin male JYC on the next tube. The pigtails can be joined directly or a jumper cable may be used.
  - d. At 120VAC 20 Versa TUBEs may be connected in series.  
At 240VAC 40 Versa TUBEs may be connected in series.
3. Data Cabling



**WARNING: Power should be OFF when plugging or unplugging ANY data cable connections.**

- a. Each tube has a 4-pin input (male) and output (female) JYC connector for Local Data.
- b. Connect each 4-pin female JYC to the 4-pin male JYC on the next tube. The pigtails can be joined directly or a jumper cable may be used. The maximum length of a data jumper cable is 3m. Longer jumps can be made by inserting a Local Data Amplifier in line.
- c. 30 Versa TUBEs may be connected in series. After every 30 tubes, a Local Data Amplifier must be used. This will drive an additional 30 tubes.

## 3. Versa DRIVE to Versa TUBE Connection

There are three options for connecting data from the Versa DRIVE D2 to the Versa TUBEs.

1. Local Data
  - a. Connect the Local Data Output from the D2 to the Local Data Input on the Versa TUBE using a 4-pin XLR to JYC cable. The maximum cable length is 3m.
  - b. When using the Local Data Output, the first pixel of the first Versa TUBE is automatically pixel #1.

2. Data Amplifier (Serial Data to Local Data type)
  - a. Connect the Serial Data Output (Port A) from the D2 to the Serial Input on the Data Amplifier using a 6-pin XLR to JYC cable. The maximum cable length is 100m.
  - b. Connect the Local Data Output from the Data Amplifier to the Local Data Input on the Versa TUBE using a 4-pin JYC to JYC cable. The maximum cable length is 3m.
  - c. When using a Data Amplifier, the first pixel of the first Versa TUBE is automatically pixel #1.
3. Buffer Box
  - a. Connect the Serial Data Output (Port A) from the D2 to the Serial Input on the Buffer Box using a 6-pin XLR to JYC cable. The maximum cable length is 100m.
  - b. Connect the Local Data Output from the Buffer Box to the Local Data Input on the Versa TUBE using a 4-pin JYC to JYC cable. The maximum cable length is 3m.
  - c. When using a Buffer Box, the first pixel of the first Versa TUBE must be assigned an address. See section 6 for details.

## 4. Computer & Versa DRIVE Connections

1. Set the DVI Connection

 **WARNING: All equipment must be OFF when plugging or unplugging ANY DVI connections.**

- a. Set the display properties on your computer to 1,024 x 768 @ 60 Hz.
  - b. Power down your computer.
  - c. Make sure the Versa DRIVE and computer are powered off.
  - d. Connect the DVI output from the computer to the DVI input on the Versa DRIVE.
  - e. Connect your monitor.
    - i. If you are using a D2, you may plug your DVI monitor into the DVI output on the back of the Versa DRIVE.
 

**NOTE:** make sure your DVI monitor is turned off when making this connection.
    - ii. If you are using a D1, connect your monitor to the VGA output from your video card.
  - f. Turn the Versa DRIVE on.
  - g. If using a VGA monitor, turn it on now.
  - h. Boot up the computer.
 

Within a few seconds, the DVI Link light on the front panel should blink steadily.
  - i. If using a DVI monitor, turn it on now.
2. Set the Serial Connection
    - a. Connect the computer to the Versa DRIVE with an RS232 cable.
 

If using a D1, skip to step 2b.

If using a D2, set the D2's serial connection to RS232:

      - i. On the D2's front panel, press **Λ** (Up) or **V** (Down) to highlight the SERIAL INPUT menu, then press ENTER.
      - ii. Press **Λ** (Up) or **V** (Down) to highlight the SERIAL menu, then press ENTER.
      - iii. Press **Λ** (Up) or **V** (Down) to highlight the RS232 menu, then press ENTER.
      - iv. Press **MENU** to go back to the SERIAL INPUT.
      - v. Press **Λ** (Up) or **V** (Down) to highlight the ID menu, then press ENTER.
      - vi. Press **Λ** (Up) or **V** (Down) to set the value to "1", then press ENTER.

- b. Launch RasterMAPPER and go to the Versa DRIVE Control Tab.
    - i. Set **Serial Port** to Port = COM1, Baud = 19200.
    - ii. Set **Versa DRIVE Model** to D1 or D2.  
If you are using a D2, select #1 in the **Versa DRIVE Select** panel.
    - iii. Press **Connect**.
    - iv. Test the connection by pressing **Firmware Version** **Get**.  
This should display the Versa DRIVE's current firmware version and revision date.
    - v. Set **Image Offset** to 0,0 and press **Send**.
    - vi. Set **Brightness Index** to 10 and press **Send**.
    - vii. Set **Output** to Video (the large button with the video monitor on it).
3. Connect the Versa DRIVE to Versa TILE Panel
    - a. Connect a 6-pin XLR cable from Serial Output A on the back of the Versa DRIVE to the Data Input connector on the back of the first Versa TILE panel.
    - b. If the Versa DRIVE is on and receiving a valid DVI input, the Data LEDs on the back of each Versa TILE panel should be blinking rapidly.

## 5. RasterMAPPER

RasterMAPPER creates a map that defines the relationship between the pixels in your video content and the pixels in the Versa TUBE system.

To download the most recent version, please visit [www.elementlabs.com/support](http://www.elementlabs.com/support).

1. Create a map of your system
  - a. In RasterMAPPER, go to the **Pixel Map** tab and select the **Fixture Info** tab.
  - b. Select a fixture from the **Fixture Select** drop-down menu (i.e. Tube 1m).
  - c. Turn off the **Grid Snap** function.
  - d. Select the **Arrow +** (yellow) tool and click in the grid area to add fixtures.
    - i. The order in which you place the fixtures will determine how they need to be addressed in the next section.
  - e. Right clicking with the **Arrow +** tool to delete fixtures.
  - f. With the **Arrow** (white) tool, click on the green dot at one end of a fixture to move it.
  - g. With the **Arrow** (white) tool, click on the yellow dot at the other end of a fixture to rotate it.
  - h. **NOTE:** For more complex needs, consult the RasterMAPPER manual.
2. Review the sequence of the Versa TUBES
  - a. Go to the **Sequence** tab.
  - b. Press the **Show Address** button.  
Each fixture will now be labeled with its sequence number, ranging from 0 to N.  
Note the first tube (#0) and the order.
3. Send the Pixel List to the Versa DRIVE
  - a. Go to the **Pixel List** tab. Note the **Total Pixel** count.
  - b. Press the **Send** button.  
This may take a few seconds depending on the size of your map.
  - c. Go to the **Versa DRIVE Control** tab.
  - d. Press the Pixel Count **Get** button.  
This should return the same value as the Total Pixel count from step 3a.

## 6. Buffer Box

If you are using the Local Data Output on the Versa DRIVE, or a serial to Local Data Amplifier, skip this section. Otherwise, you must set the start address and other parameters on the Buffer Box as follows:

1. Set the address on the Buffer Box to access the address mode.
  - a. Press the **MODE** button until the red LED decimal point above the "ADDRESS ●" is lit.
  - b. Press (or press and hold) the **DOWN** and **UP** buttons to set the desired address. In most simple systems with one Buffer Box this address will be "1".
  - c. Although it only has a three digit display, the Buffer Box can be set to any address from 0 to 1999. When the three decimal point LEDs are off, the address is in the 0 – 999 range. When the three decimal points are on, the address is in the 1000 – 1999 range.
  - d. After setting the address press the **MODE** button three times to go to the Lock Mode. The red LED decimal point above the "LOCK ●" will be lit. Failure to do this will result in the new address not being saved. If the Buffer Box automatically goes into Lock Mode (after 10 seconds of inactivity) instead of manually locking it, the new address information will not be saved.
2. Set the total number of pixels.
  - a. The total number of pixels = # tubes x 16. Set this value in the TILES mode using the same procedure as the address.
  - b. Once the Buffer Box is locked the display will alternate between the starting address of that Buffer Box and the calculated starting address of the next buffer box (Address value + Tiles value).
3. Set the Versa DRIVE type.

Note: Only firmware version A20 supports the Versa DRIVE D2. Determine the firmware version by reading the number on the LED display during the first second after the Buffer Box is turned on.

  - a. Press the **MODE** button until the display shows **t-d1** or **t-d2**.
  - b. Use the **Down** and **UP** buttons to select **d1** if you are using a Versa DRIVE D1, or **d2** if you are using a Versa DRIVE d2.
  - c. After setting the Versa DRIVE type press the **MODE** button once to go to the Lock Mode. The red LED decimal point above the "LOCK ●" will be lit. Failure to do this will result in the new type not being saved. If the Buffer Box automatically goes into Lock Mode (after 10 seconds of inactivity) instead of manually locking it, the new type information will not be saved.


## 7. Testing the System

1. Go to the **Versa DRIVE Control** tab in RasterMAPPER.
2. Select one or more of the test pattern options in the **Output** section.

NOTE: Dynamic test patterns are not supported by the D1.
3. Select Video in the **Output** section.

The Versa TILE system should now be displaying the upper X x Y pixels from your computer screen. A simple method to check the accuracy of your map is to move your mouse cursor (arrow) around in the area of your screen that is mapped to the Versa TILE system. You should see the cursor move smoothly across the Versa TILE panels. Note that this may be difficult to observe depending on the arrangement of your tubes.

## 8. Troubleshooting

Problem	Cause	Solution
<b>Why are my tubes multicolored and static?</b>	No serial data or	<ul style="list-style-type: none"> <li>• Make sure that all data connectors are firmly mated.</li> <li>• The green data light on the Buffer Box panel should blink rapidly. If the light is not blinking, try another cable</li> <li>• Make sure you have loaded a proper map from RasterMAPPER into the Versa DRIVE.</li> <li>• If you are using a D1, turn it off, wait 5 seconds, and turn it back on – this will reset the sync between the drive and the panel.</li> </ul>
	No or invalid DVI input to Versa DRIVE	<ul style="list-style-type: none"> <li>• Verify that the DVI cable is firmly seated and screwed into both the Versa DRIVE and the computer. If the cable is loose, power down both devices before making the connection.</li> <li>• In your computer's display properties, make sure your DVI output is enabled and set to 1,024 x 768 @ 60 Hz.</li> <li>• Try another DVI cable.</li> </ul>
	Type set incorrectly on buffer box	<ul style="list-style-type: none"> <li>• On the buffer board, press the <b>MODE</b> button until you see <b>t-d1</b> or <b>t-d2</b>.</li> <li>• Press <b>UP (Λ)</b> or <b>DOWN (V)</b> to select D1 or D2 depending on your model of Versa DRIVE.</li> <li>• Press <b>MODE</b> to exit and save your changes.</li> </ul>
<b>Why is my expected image distorted or discontinuous?</b>	Map error	<ul style="list-style-type: none"> <li>• Check the map created in RasterMAPPER. In the Versa DRIVE Control tab of RasterMAPPER, connect to the Versa DRIVE and press the Pixel Count  button. If this number is not equal to the number of tiles in your system, the map did not load correctly. Send the map again and verify the Pixel Count again.</li> </ul>
	Incorrect tile addressing	<ul style="list-style-type: none"> <li>• Make sure the Buffer Box(es) have correct address and size values.</li> </ul>
<b>Why is my DVI light not blinking?</b> <b>Or blinking slowly?</b>	Incompatible DVI signal or wrong resolution and frequency.	<ul style="list-style-type: none"> <li>• The Versa DRIVE requires 1,024 x 768 @ 60 Hz (59.97 Hz is not a correct frequency). Make sure your computer's output is set to this resolution and frequency.</li> <li>• If the resolution of the computer is changed and a Versa DRIVE D1 is used, power off the D1 for 5 seconds and then turn it back on.</li> </ul>

<p><b>Why is my desktop only displaying its content and nothing else?</b></p>	<p>A VGA monitor is in use with the Versa DRIVE and the Versa DRIVE is seen by the computer as an extension of the desktop in dual monitor mode.</p>	<ul style="list-style-type: none"> <li>• Power down all devices.</li> <li>• Boot the computer with only the monitor connected.</li> <li>• Consult your video card manufacturer's documentation on how to set the two monitor outputs in "Clone" or "Mirror" mode.</li> <li>• Power down the computer and reconnect the devices and power up as described earlier in this guide.</li> <li>• If you continue to experience problems, consult the computer / video card vendor.</li> </ul>
<p><b>Why is only part of my system working properly?</b></p>	<p>Serial Data is not passing through the entire system.</p>	<ul style="list-style-type: none"> <li>• Check that all of the Serial Data cables are firmly seated.</li> <li>• Verify that the Data lights are rapidly blinking on each Buffer Box.</li> <li>• Make sure that the data is not daisy-chained through more than 30 tubes without an additional Local Data Amplifier.</li> <li>• If proper operation stops partway through a tube, try replacing that tube.</li> <li>• If proper operation stops in between two tubes, try replacing one, then the other tube.</li> </ul>

## **9. Contacting Element Labs**

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