Macintosh: Connecting NTSC Devices to the Macintosh

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TOPIC ---

I have a 25-Inch Sony Trinitron KX-2501A, a 40-Inch Mitsubishi VS-4003R and a Sony high-resolution projector, Model VPH722Q1.

I want to be able to use them for a presentation.

How can I tie these displays (RGB and/or composite) into a Macintosh II? Eventually, I want a capability for all three displays.

DISCUSSION ---

We have been unable to track down any information on the Sony Trinitron KX-2501A. Generally, when a Sony product has the Trinitron title it is a consumer-level display unit. Extrapolated from that, it most likely provides NTSC input rather than RGB input.

The Sony VPH722Q1 is an NTSC composite projector. To provide the high-quality Macintosh images to which people are accustomed, a video projector that accepts RGB input at a horizontal scan rate of 22 MHz should be used. Generally, these projectors are known as having data projection capabilities. The Sony VPH722Q1 is not considered by Sony as a data projection unit.

The Mitsubishi VS-4003R accepts only NTSC input. Using the above assumption concerning the Sonys and the fact that the Mitsubishi is NTSC, the following information applies to connecting NTSC devices to the Macintosh.

The Macintosh standard video output is RGB. To display this video output on a NTSC device certain things need to take place:

- The typical scan rates for RGB are much higher than that of NTSC; this scan rate must be lowered to meet the NTSC RS-170-A specifications.

- RGB is a component video signal, NTSC is a composite video signal; the RGB signal must be converted to the composite signal.

- The RGB cable is a multi-conductor cable. The NTSC cable is a two-conductor

cable. The device that does the RGB-to-NTSC conversion typically provides the correct output connector for NTSC, and sometimes provides a pass-through for RGB.

The scan rates are determined by the video card residing in the Macintosh. Therefore, the first item to address is the video card to be used. Some video cards are designed as RGB scan rates only. Some can be configured to the appropriate rate. Others can output NTSC scan rates only. If you have a video card that can be configured to the correct rate, the addition of the converter and cable is all that is required. If your current card is RGB only, then you need a new card.

Once a video card configurable to NTSC scan rates is present in the Macintosh, the next step is to locate a converter box that works with the particular video card in use. Sometimes this box is available only from the manufacturer of the video card, other times third parties provide a selection to choose from. This depends on the card.

When a converter box that works with the video card is located, the remaining step is to plug the NTSC output of the box into the NTSC input of the monitor. This is exactly like plugging a VCR into a television. Most often this is a RCA-type phono plug to RCA-type phono plug cable.

The other common connector is the BNC connector. Adapters are available to convert the connectors from one style to the other. The newer converter boxes appearing on the market also offer an S-Video connection. These connectors are mini-4 connectors (similar to Apple's Mini-8 connectors). They are found on newer televisions, monitors, Hi-8mm/Super-VHS/EdBeta video cassette recorders, and camcorders. The S-Video connection yields a higher-quality image than the usual NTSC signal. S-Video, however, is still an NTSC signal.

There are image issues when sending the Macintosh screen to NTSC devices, due to the lower-quality image of the NTSC environment. The simplest rule is" "develop your presentation on an NTSC monitor". Most of the other issues fall into place if this rule is followed.

You can minimize other issues facing NTSC images with these tips:

- Use larger font sizes -- 24 points minimum.

- Use color palettes designed for the NTSC environment (MacroMind Director includes an NTSC palette).

- Use larger graphic images, small details disappear.

- Use two-pixel-wide horizontal lines to avoid flicker.

- Centering the information, outer edges disappear from display (known as NTSC safe area or TV safe area).

The Macintosh Display Card 4/8, 8/24, and 8/24 GC can be used with NTSC/S-Video devices by including either RasterOps' Video Expander Box or Truevision's VIDI/O Box. Both of these RGB-to-NTSC converters let the new Macintosh Display

Cards' signal be sent to NTSC/S-Video televisions and video recorders. For additional information about the details of connecting the Macintosh Display Cards to NTSC, search under "Macintosh and NTSC".

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