



RTC2000 Reverse Transcoder Users Manual



Introduction

The **Crescendo-Systems RTC2000** reverse transcoder is a highly flexible device to convert a YPrPb component signal into a RGBHV signal. The **RTC2000** will support video formats in 480i, 480p, 576i, 576p, 720p and 720p, 1080i23/25/30 and 1080p50/59/60. It also supports computer resolutions up to UXGA (1600 x 1200 @75Hz) for the RGB pass through function.

The **RTC2000** supports both color conversions for 480p (SD) and 720p/1080i (HD) in order to provide optimum color fidelity. Although the required conversions are nearly identical, the difference cannot be ignored when optimum quality is pursued. The selection is automatically made based on line frequency but can be set manually if so desired.

Although most display devices automatically fix the reference level on the incoming video signal, the **RTC2000** has an adjustable black level for optimum use in DC coupled video systems. Additionally, the possibility exists to offer the user manual control over the horizontal sync delay and the horizontal and vertical sync widths.

Warning! Using incorrect scan-frequencies can seriously damage your TV or front projector, Crescendo-Systems takes no responsibly implied or otherwise and Crescendo-Systems' total liability to any customer for any and all claims relating to the use of the **RTC2000** shall not exceed the total amount paid by such user to Crescendo-Systems for obtaining this product.

Specifications

The **RTC2000** offers the user total flexibility and has the following specifications and features:

- High-Bandwidth component to RGBHV transcoder with RGBHV pass-through
- Manual or automatic color conversion selection for SD and HD color space
- Accepts bi- and tri-level sync and is Macrovision compatible (except 480i, 567i)
- Completely removes all sync from the output
- Accepts the following component video formats on the component input:
 - 480i
 - 480p
 - 576i
 - 576p
 - 720p
 - 1080i23/25/30
 - 1080p50/59/60
- Accepts up to UXGA (1600 x 1200 @75Hz) on the RGB input
- Adjustable black level for DC coupled systems
- Automatic or manual setting of H-delay, H-width, V-width, H-polarity and V-polarity
- Drives cables of up to 50 feet (16m)
- Component (YPrPb) input on three color-coded RCA connectors.
- Pass-through input and RGB output on a female VGA connector. The gain equals unity when driving 75 Ohm
- Sync outputs have a 75 Ohm source resistance and can drive a 75 Ohm load

Included in this package are one **RTC2000** and one external power supply. The manual with warrantee statement will be sent by email and optionally can be directly downloaded from the [Crescendo-Systems](http://www.crescendosystems.com) website.

Setup

In order to successfully use your **RTC2000** in just follow the simple steps outlined below.

1. Make sure that your source device has the ability to correctly set the timing needed by your display. **If this is not the case, do not use the RTC2000.**
2. Connect the component output of your source to the component input of the **RTC2000**. Additionally, you can connect a RGBHV signal to the pass through input of the **RTC2000**, which will be activated by the presence of a sync signal.
3. Connect the **RTC2000** to your display using the VGA output connector.
4. Connect the power supply to the transcoder. Use only the supplied unit or an exact equivalent.

Additional features

The **RTC2000** is shipped in full automatic mode with the following features:

- The input is auto selected based on the presence of a sync signal on the RGB pass through input. If sync is present on the RGB port that input is selected, otherwise the component input is selected.
- The color space is automatically selected based on the line frequency of the incoming signal.
- The level of the backporch is set to zero volts. This level is only important in DC coupled systems. Almost all display devices are AC coupled and the black level is clamped internally, in which case the black level control will have no influence.
- The horizontal and vertical sync width and position are automatically selected based on the incoming signal.
- The horizontal and vertical sync are set to negative polarity.

Normally the full automatic mode should work in most cases. If it does not, all of the features mentioned above can be overruled manually. To do so the case has to be opened and a number of jumpers changed. **Before opening the case please remove the power supply first.** Remove the four screws at the bottom of the **RTC2000** and lift the top of the case. Inside is the printed circuit board of which an enlarged section is shown in figure 1 below. On the PCB are three jumper blocks that can be used to customize the various options of the **RTC2000**. A description of the jumpers is given below.

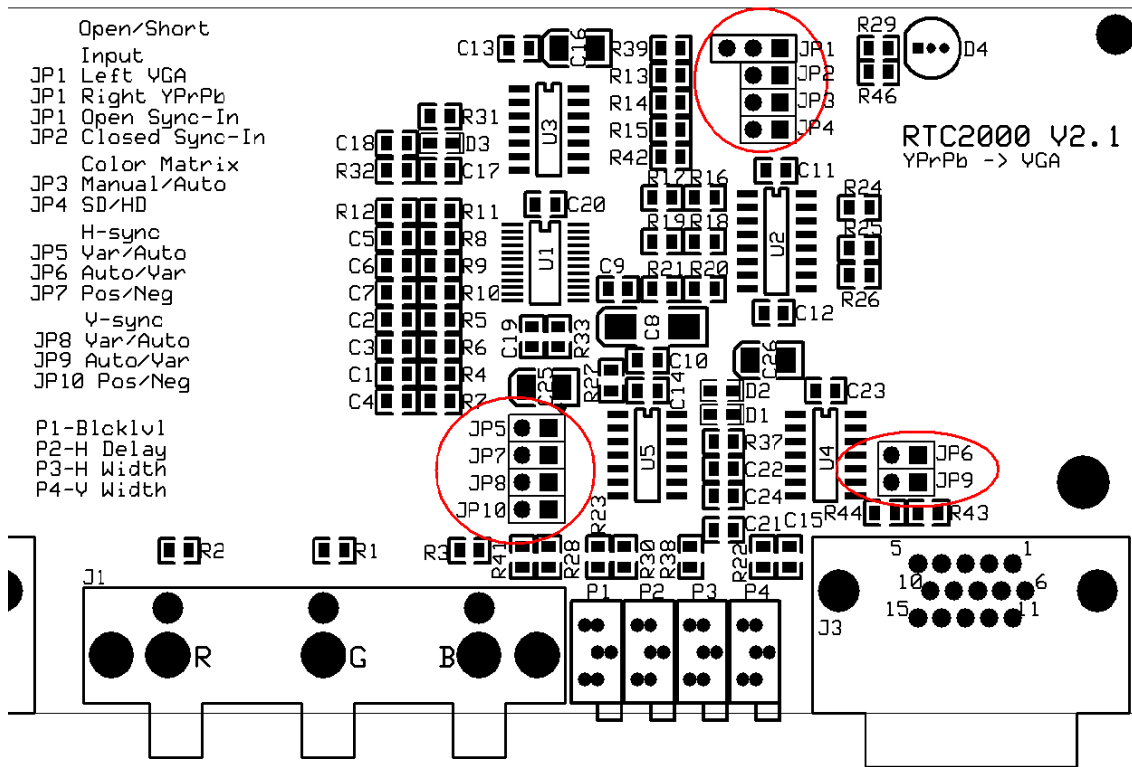


Figure 1 RTC2000 printed circuit board

- JP1:** Manual input select. Left two pins shorted selects VGA input. Right two pins shorted selects component input. For automatic input select leave JP1 open.
- JP2:** For automatic input select JP2 has to be shorted, for manual input select keep JP2 open.
- JP3:** For automatic color space select JP3 should be shorted. Keep JP3 open for manual color space selection.
- JP4:** Jumper for manual color space selection, open means standard definition color space, shorted selects high definition color space. **Warning:** shorting JP3 and JP4 at the same can cause damage to the **TCP2000**.
- JP5:** For automatic horizontal sync selection this jumper should be shorted, leave open to manually set the H-sync width and delay.
- JP6:** For manual horizontal sync selection this jumper should be shorted, leave open otherwise. The two 25-turn potmeters on the back labeled H-delay and H-width can now be adjusted with a small screwdriver in order to set the desired horizontal sync delay and horizontal sync width. Turning the potmeters clockwise will increase the value.
- JP7:** Short this jumper for negative horizontal sync at the output, leaving it open sets a positive horizontal sync.
- JP8:** For automatic vertical sync selection this jumper should be shorted, leave open to manually set the V-sync width.

- JP9:** For manual vertical sync selection this jumper should be shorted, leave open otherwise. The 25-turn potmeter on the back, labeled V-width can now be adjusted with a small screwdriver in order to set the desired vertical sync width. Turning the potmeter clockwise will increase the value.
- JP10:** Short this jumper for negative vertical sync at the output, leaving it open sets a positive vertical sync.

Warranty

Crescendo-Systems designs and builds all products with the highest of care and every product should operate trouble-free for many years when used under normal operating conditions. Therefore, every **RTC2000** carries a 1-year no-hassle replacement warranty. Should a warranty replacement be needed, please contact sales@crescendo-systems.com first.