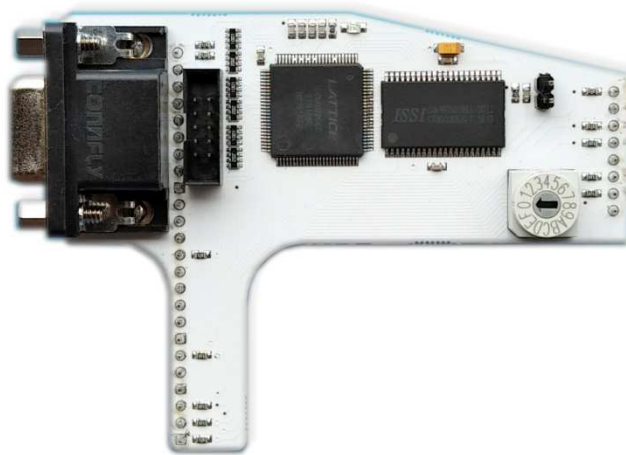




RWB3VGA VGA User's Guide



PRELIMINARY

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PRELIMINARY

Description

The RW3VGA is a video add-on module adapter for RamWorks series of card from Applied Engineering. In this day and age, composite CRT monitors for these vintage/retro systems are becoming scarce and harder to obtain, mainly due to the attrition rate of monitors pushing 30 years of age. VGA LCD monitors are part of everyday life and can be had for a cheap price. The RW3VGA adapter converts the RamWorks expansion video output into a VGA compatible signal. This means you can use almost any CRT or LCD VGA monitor on your Apple IIe computer with installed RamWorks Card. RW3VGA works with both NTSC and PAL based Apple IIe machines.

RW3VGA supports the following Apple IIe video modes

- 40 and 80 columns text, with 24 lines
- Low-Resolution: 40 × 48 (15 colours)
- High-Resolution: 280 × 192 (6 colours)
- Double-Low-Resolution: 80 × 48 (15 colours)
- Double-High-Resolution: 560 × 192 (2 colours)

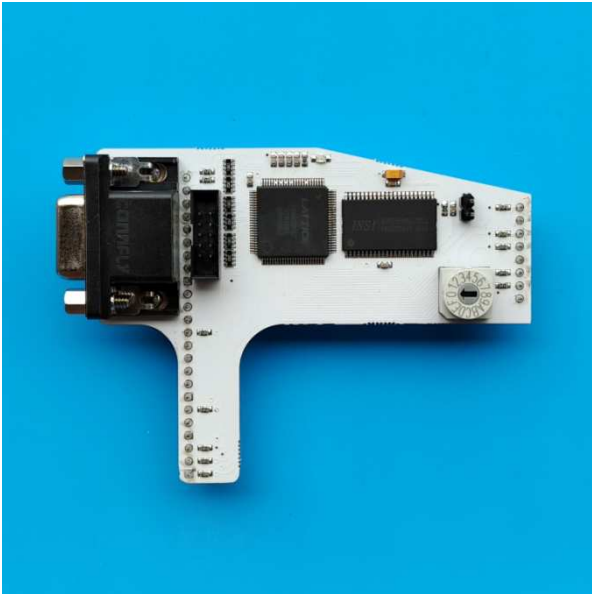
Contents of Package

RW3VGA – RamWorks VGA Adapter PCB

15 Pin D Type connector and extension cable

Button with cable and connector for change modes

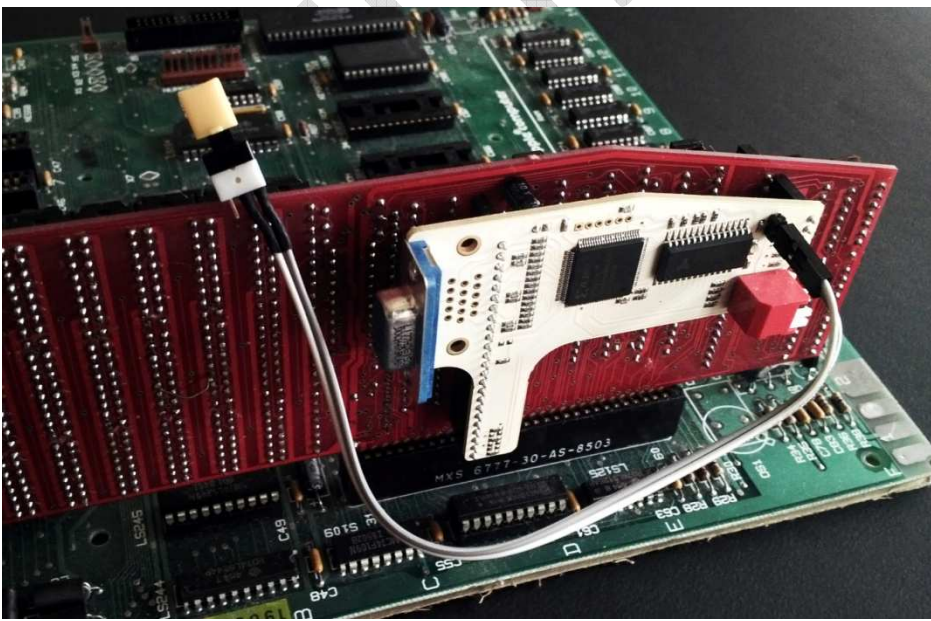
Connections



For most situations, you will simply connect the PCB to back side of your RamWorks card, and connect your VGA monitor to the VGA port.

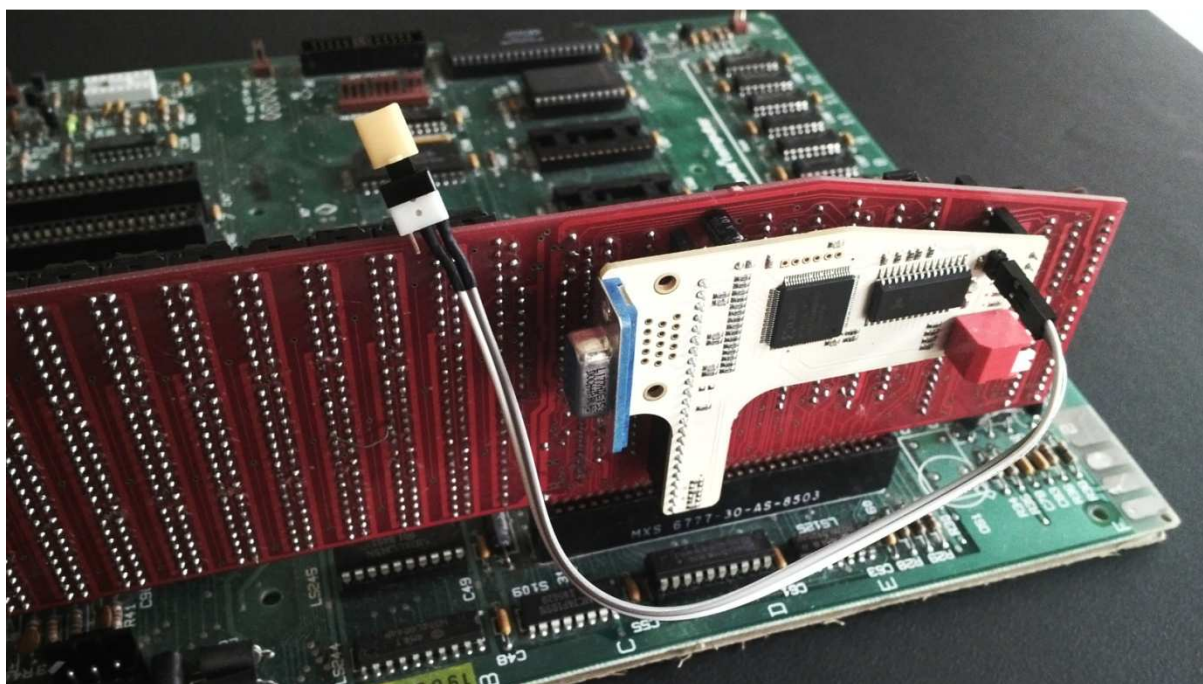
*** Please be aware, the RW3VGA output is VGA 720x480 resolution. This may not work on some older VGA monitors. ***

Apple IIe rear view



RW3VGA connecting

The completed setup should look like this:



RW3VGA Modes

The RW3VGA has 10 modes of operation, to allow you to tailor your retro experience. The 10 modes are as follows:

- 1 - Colour
- 2 - Colour Alternative
- 3 - Shades of Green
- 4 - Shades of White
- 5 - Mono - Green
- 6 - Mono - White
- 7 - Mono - Amber
- 8 - Mono - Green (Bold)
- 9 - Mono - White (Bold)
- 10 - Mono - Amber (Bold)

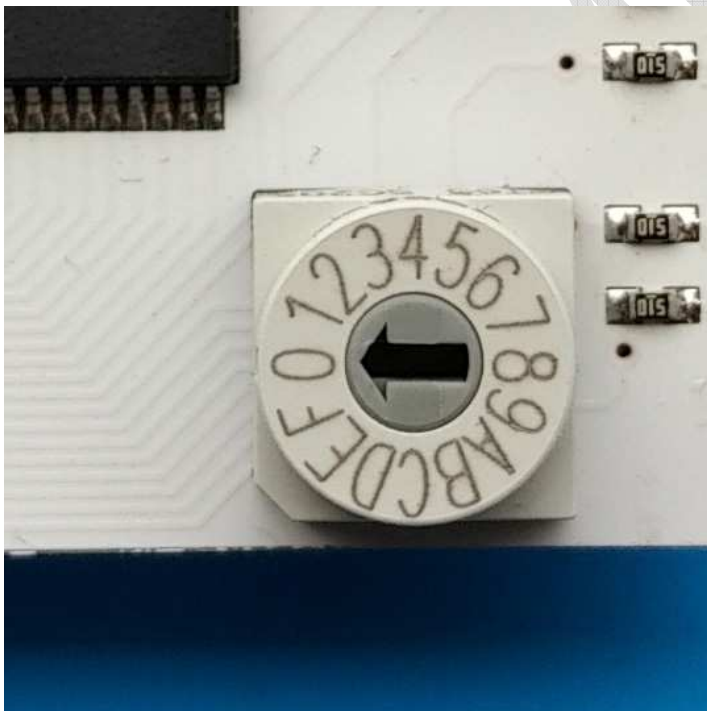
The modes are accessed sequentially by pressing the mode button, each press will change the mode and show it with blinks on green led, once you get to mode 10, pressing the button once more will return you to mode 1 and the sequence repeats.

Brief description of how it works

The RW3VGA adapter is a paradox of technology. Its form and function is simple, and yet internally it is complex. Thankfully, due to the excellent work done by Plamen, RW3VGA is simple to use. RW3VGA uses 2 LSI devices, a CPLD and a 256K x 16 static ram. The CPLD (Complex Programmable Logic Device) is configured as a scan line doubler, in that it stores the video information from the Apple IIe (15Khz) frame by frame and then outputs the video as VGA 720 x 480 (shows as 640 x 480 on some VGA monitors) at 31Khz. The 256K x 16 static RAM is used as a video frame buffer.

Setting the default video mode

You can set the default video mode using rotary selector on RW3VGA board



The number selected is set default mode on power-up.

When you receive the RW3VGA adapter, it is factory set to default to mode 1, Colour – VGA Rendering (no added/visible scan lines). For most people this is exactly what they want, but there is a means to change the default video mode.

Troubleshooting

RW3VGA is so simple to use, you should not run into any issues. It draws its power from the RamWorks video expansion connector. If you properly connect RW3VGA to RamWorks and VGA monitor, it should work fine. If the video is not as you expected, keep pressing the mode button until you see the image style you desire.

If you do not get any video signal to your VGA monitor, you can do some basic checks.

Make sure the RW3VGA is plugged correct in and Apple IIe is switched on.

Do you get composite video out via the composite video port on the Apple IIe ?

Is your VGA monitor plugged in and switched on?

Is your VGA monitor capable of 720x480 resolution?

Test the VGA monitor with another video source, i.e. a Mac or a PC.

Frequently Asked Questions

Q. Who makes the RW3VGA adapter?

A. The adapter was designed and built by Plamen from a2heaven.com. This includes the software/firmware, circuit design and the PCB.

Q. Can I use RW3VGA on other computers?

A. Almost certainly no, the RamWorks card uses a custom video expansion interface, not found on other machines. RW3VGA was designed exclusively for the Apple IIe series of computers with RamWorks PCB.

Q. How much does the RW3VGA adapter cost?

A. At the time of writing this document (Late Jun 2018), the price was US\$85.00 which includes shipping to anywhere on the planet.

Q. I have an PAL version of Apple IIe, will this work?

A. Yes , RW3VGA is support both NTSC and PAL Apple IIe

Where to find further help

Phone: +359 888 810 993

Email: info@a2heaven.com

Facebook: <https://www.facebook.com/Apple-IIc-VGA-177260632607299>

About a2heaven.com

A2Heaven is a small company that implements new technology for use on vintage computer hardware.

About this User Guide

This User Guide was written by Martin Crockett and Plamen Vaysilov, Version 1.00, 11th Jun 2018, 1st public release.

Warranty

A2Heaven.com warrants the RW3VGA adapter for 6 months or 180 days, from the date of purchase. This warranty assumes the RW3VGA adapter has not been tampered with in any way.

PRELIMINARY

Some other a2heaven products

Apple SAM (Semi Automatic Mouth): A high quality speech synthesizer.

Mockingboard-T: A sound card for all Apple II computers, no speech chip.

ALF MC1 Clone: A music synthesizer that allows you to program music into your apple using standard musical notation.

Ramworks III Clone: Comes with 64k, expandable to 1M or 3M with 2M expander board. For apple IIe only.

Ramworks III VGA adapter: Option board for the Ramworks III Clone. Generates VGA compatible video, only for NTSC, 60Hz Apple IIe.

dClock: Clock option for Ram Express or Apple IIc Memory Expansion card.

Senior PROM IIe: Add debugging commands to your Apple IIe, such as entry to System monitor at any time, copy memory to and from auxiliary memory, plus much more.

Trak Star II: Gives constant digital read of any 5.25" Apple II drive, great for seeing what that pesky protection scheme is up to. Supports full, half and quarter track movement.

SDFloppy II: Store up to 16 .DSK images on an SD card, replaces 5.15" floppy drive.

PRELIMINARY