

The Video-Out Module for the MacPicasso 540

Mac

Picasso

English V. 1.1

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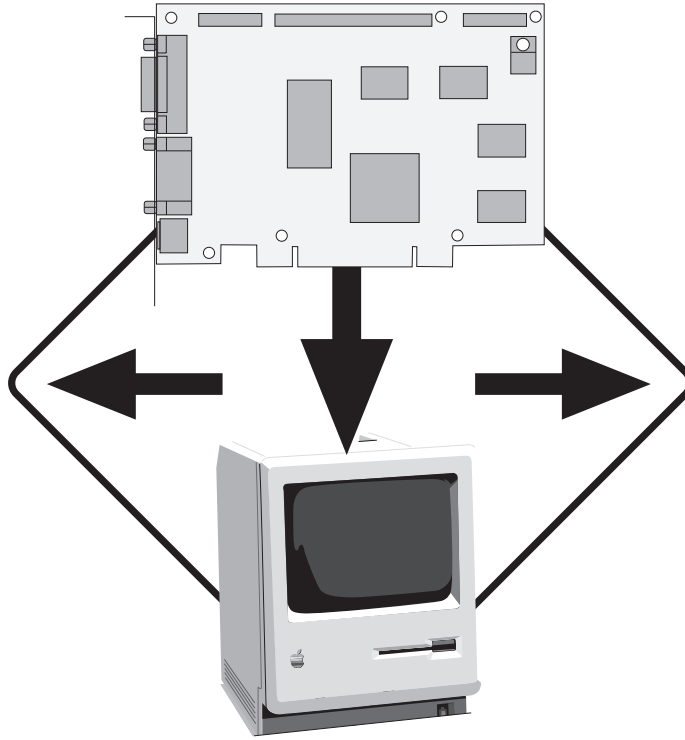
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1. Hardware installation

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Don't panic...

It is not very difficult to extend a MacPicasso graphics board with a Pablo module; this job can even be done by a newcomer to computers. Should your dealer have told you that the manufacturer warranty will cease if you open the housing of your computer yourself, don't get downhearted. In general, most courts nowadays have a different attitude towards things.

... but don't be too high-spirited either

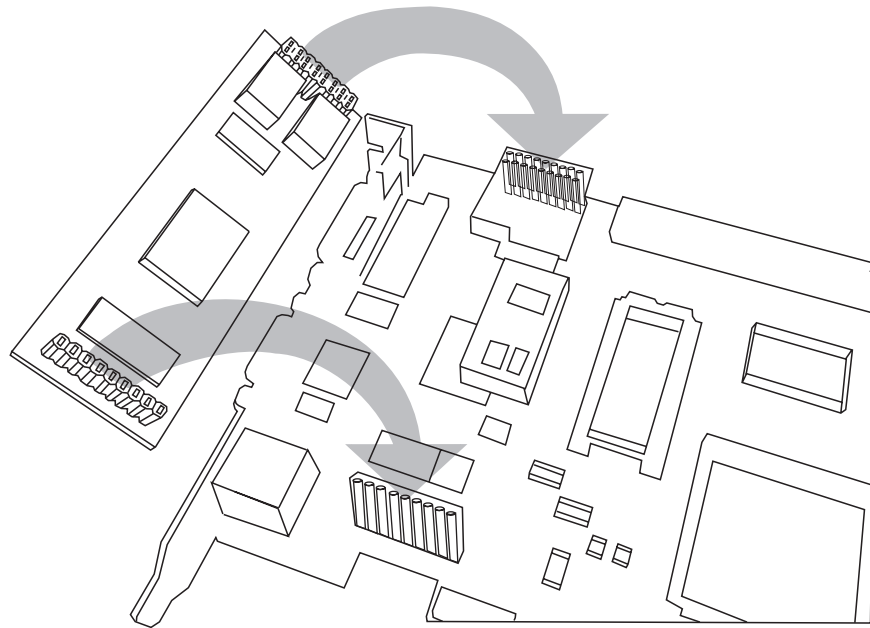
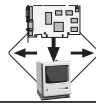


On the other hand, you should avoid becoming too careless. It may happen that an improper installation will cause damage. For example, if you install the p. c. board with your computer switched on this may destroy the processors. Therefore please follow the instructions given in this manual or the installation instructions of your computer manual. Your effort will be worth it finally - you will be able to benefit from an extended Macintosh.

How to put on the module

If you have already a MP540 or MP340 in your computer you can install the Pablo video output module after having removed the respective graphics board first. You will find detailed information about this procedure in your Macintosh documentation and, of course, in the manuals of our graphics board. In the case that your MP graphics board is as new as your Pablo module there is no need for uninstalling the graphics board, and you can go on with the next step: the installation of the Pablo module on the graphics board.

Place the MacPicasso graphics board on a clean surface with the gold-plated contacts of the board (PCI, MP540) - or the rectangular terminal strip, respectively (NuBus, MP340) - towards you. In either case the connector strips for the Pablo module are located near the unit connectors at the upper and lower board edges.



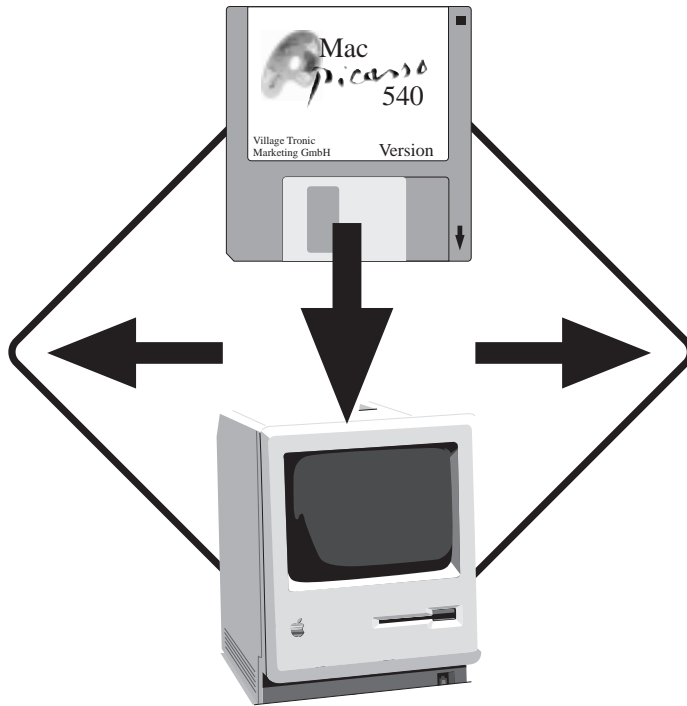
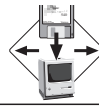
When plugging the module in the board please be careful and make sure that

- the double-row female connector strip is properly positioned on the double-row male connector strip, and that the single-row female strip is properly positioned on the single-row male strip;
- all pins of the male connectors make contact in the female connectors
- you fully plug in the module by pressing it down lightly on the graphics board until the pins of the male connector strips come to a stop in the female connector strips.

NOTE: Wrongly installed modules may severely damage your computer.

Please proceed in accordance with one of the aforementioned manuals for (re-)fitting your newly extended graphics board.





2. Software

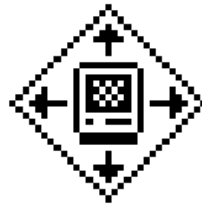
Software installation10

Software installation

How to install the software

1. Please insert the floppy disk "Install Monitors & Picasso" into the disk drive of your computer.

The floppy disk window will open.

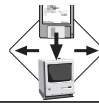


2. Start the installation program by double-clicking on the symbol "Install Monitors and MacPicasso".

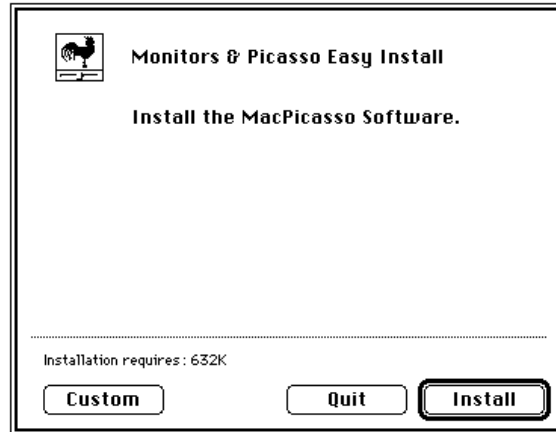
You will see the welcome screen below:



3. Click on the "Continue" button.



The dialogue for the standard installation appears (*):



4. Click on the "Install" button.

Now a window showing the installation progress appears



5. The following window appears after successful completion of the installation:

(*) All components of this software will be installed by selecting "standard

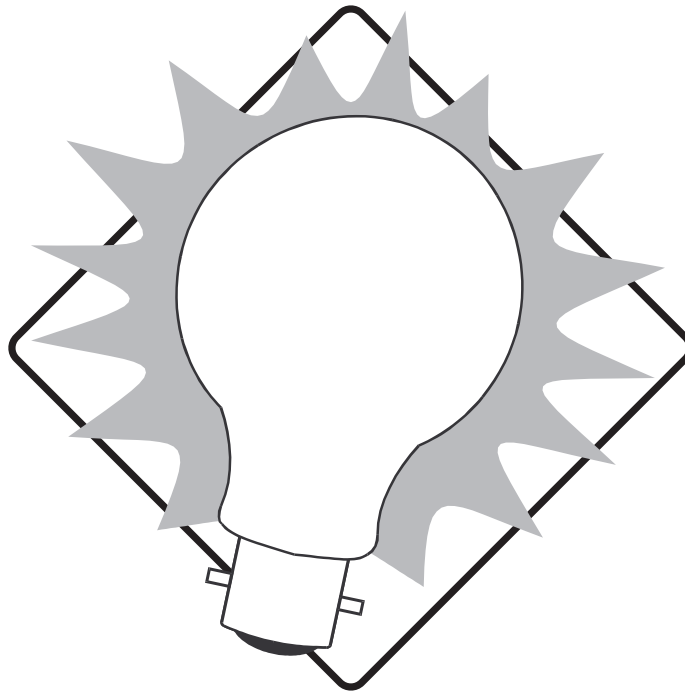


installation". As an alternative you can install individual components by clicking on "Custom" and subsequently selecting the components to be installed.



6. Choose "Quit" to exit the installation program.

7. Choose "New start-up" from the "Special" menu to activate your newly installed software. This automatically causes the floppy disk to be ejected, and you can take it away. From now on the control panel for the video output (Pablo) is available in "Monitors & Picasso".



3. Efficient use

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3.0 Preface

Being a video freak amongst the Mac users certainly you've always known that the screens of the first stand-alone computers were merely video monitors used for another purpose.

However, this was 20 years ago, and today's computers have left their technical ancestors far behind for years. So, as time went by, numerous "natural" capabilities computers once had - such as the output of video signals - have become special tasks that cannot be fulfilled by many a modern computer anymore.

Fortunately, now that the required technologies have been fully developed and proven to be functional, a change in computer technology slowly but surely progresses today: based on new hardware and software the computer technology moves "back to the roots" - the gap between innovative computer technology and "ancient electronics" is overcome by new, modern bridges.

With regard to video technology, today there are facilities that allow not only for the playback of carefully prepared video files but, finally, even for watching, processing and transferring "live" videos.

Pablo's special task is the output of video signals - one of the harder tasks in video technology, at least for a computer. Not the job for a single chip: Pablo needs extensive help from MacPicasso. You, the user, will notice above all that Pablo requires the setting of a low (VGA) resolution rate which even definitely flickers (50 Hertz) in the case of PAL output. However, this deficiency is a widespread problem of today's chip generation - to be solved by future MacPablos and MacPicassos as soon as suitable silicon is available.

3.1 Pablo's control panel

Quick and easy

Even for the greenest of greenhorns: activating Pablo is as easy as stealing candy from a baby.

Simply tick the check box "activate Pablo" on the Pablo control panel, and the Pablo module will immediately supply a standardized video signal.

The only possible trouble can be a wrong Pablo TV standard - not all 50 Hertz TVs (Europe) can also receive 60 Hz video signals (USA) and vice versa - or a function test (in particular blackburst) that has been activated by mistake.

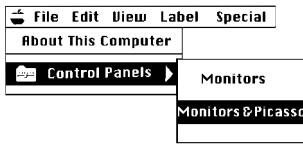
There are no other possible reasons for the connected TV not receiving at least a clear black-white picture.

(For Pablo there are only two possible causes of "discoloured" pictures: either the signal type set is wrong or the TV standard is wrong.)

Starting monitors and Picasso

Pablo's control panel is exactly where you would suspect it: in the main menu of the central MacPicasso control program "Monitors & Picasso", sub-item "MacPicasso Extras".

You can choose from two possibilities of activating "Monitors & Picasso":



1. In the Apple menu/control panels/Monitors & Picasso

When settings of your module shall be changed you will find Monitors & Picasso exactly there where you usually look for Monitors & Sound.

2. As an independent program



The installer automatically copies the program to the directory "control panels". To your benefit we programmed Monitors & Picasso as an independent program and not just as a control panel, so that you can run it now in any other way you prefer, too. So, working with MacOS 7.6 for example, if you got used to starting your favourite applications by click-start (launcher) you can, of course, copy Monitors & Picasso into this folder, too.



You will find Pablo's control panel in the main menu, sub-item MacPicasso_Extras/Pablo.

The setting options are grouped as follows:

Activate Pablo

You're right: this is the ON/OFF button.

Image position

The arrow keys of the image positioning function serve for moving the video image in the direction you clicked; this is



independent of the position on your computer monitor. The point in the centre of the keys serves for quickly resetting. This image positioning function moves the image in eight steps in either direction; the idea is, above all, to compensate for out-of-centre phenomena which are usually inherent to TV sets.

Image size

It is common practice to display an "oversized" image on the TV screen so that the edges of the image are not visible anymore. This trick from the early age of TV technology was used for easily and efficiently glossing over the lack in technical perfection television suffered in the early years. This kind of projection is referred to as "overscan". When it comes to computer screens, however, the black edge is compulsory. Anything shall be visible all the time - and technical imperfections all the more. This "undersized image" method is called "underscan".

Inbetween there's the "fit screen" technology - with matching image and screen edges, at least in theory. In practice there are more or less visible deviations depending on the make and quality class of a TV set.

Besides, the optical differences are bigger than words can say. You best take a look yourself.

Filtering

Pablo uses a two-stage flicker filter based on the principle of bilinear filtering. Two or three image lines (2-fold/3-fold) are "wiped" into each other - theoretically deteriorating the image resolution but in practice making images, in particular frozen images with sharp horizontal lines (desktop etc.), conspicuous at all. Without a filter such objects just flicker too much.

Function check

Test images are a practical tool in the field of video not only for setting up a system or for workshop adjustments but also for those numerous other jobs. Therefore the Pablo control panels offers an entire set of test output possibilities - whereof black-burst and blueburst (entirely black or blue screen), gray ramp and color bars are hardware functions of Pablo, i. e. the module generates them independently of the image on your computer monitor.

But please be careful:

In the "test" mode - perceivable by the ticked box beside "function test" - the video output is no longer identical with the information in the operating system. And in the case of an activated hardware test image even Pablo (video output) and Picasso (VGA output) will show different images.

This can easily cause confusion...

And another tip: You can create your personal, favourite test image by giving Pablo in normal operation mode the Picasso image you want.

Signal type

Pablo can optionally provide CVBS (composite video) signals or S-VHS signals. As both signal types use the same MiniDIN connector socket in the MacPicasso slot plate CVBS requires an adaptor cable "from MiniDin to Cinch/RCA" plug.

TV standard

Here you can select the standard to be applied by Pablo for generating the video signals. Usually this is the public television standard, i. e. in Europe PAL-B, -G, -I (all 50 Hertz), apart from these you can select PAL-M (60 Hz, Australia) or NTSC (U.S.A.) and NTSC-EIA (Japan).



3.2 Resolution levels

As soon as you switch on Pablo the MacPicasso resolution used hitherto will be changed to the value of Pablo's resolution in that moment. This results in line frequencies of approx. 32 kHz at 50 or 60 image changes per second (image refresh rate) at MacPicasso's output - quite moderate values nowadays and not even ergonomic - but suitable for video at least.

The monitor connected to your MacPicasso must be capable of processing frequencies that low. VGA monitors in general are suitable for all resolutions of 525 lines at 60 Hertz, and Europe-produced monitors usually will accept the 525 lines/60 Hz modes without problems. Apple's multi-scan monitors are likely to cope with this task, too.

Within the range of the stated line frequencies and image refresh rates Pabo will show the following characteristics:

TV standard	underscan	fit screen	overscan
PAL-B,G,I	640x480	672x536	768x576
NTSC/PAL-M	544x416	576x448	640x480

Please - never operate a "fixed frequency" monitor with a Pablo resolution (unless you definitely want to destroy it...).

3.3 Applications

It is not wrong to say that this piece of hardware converts VGA images to corresponding video signals suitable for being fed to your video system - and in real-time, of course. On the contrary, this statement is absolutely true. This is exactly what the hardware does. But what does this mean to the user?

You can be sure you will be amazed what you can do in practice with a computer fully fit for video - and that you will find out about the possibilities only slowly but surely when working with your computer. Keep in mind what one of our developers said: "I always knew this would be great - but I didn't expect it to be that great."

E. g. computer graphics at large

Static or animated - a good computer graphic can be enjoyed at its best on a real big screen. And a real big screen means a diagonal of 27.5" (70 cm) and more.

Hardly any computer monitor has a screen this large, and beamers suitable for computers still are as expensive as they have always been. But with Pablo you can use video equipment now - at a fraction of the costs.

E. g. animations on video tape

No problem anymore, finally. All you have to do is run your animation on the video output screen once, afterwards you will have the recorded copy on tape and you can show it almost everywhere in no time - still a video machine and a TV can be found more easily than a Mac.

Of course, this applies also - i. e. in particular - to 3D animations from the 3D overdrive module. Everybody will want to have a look. So here you are.

E. g. optimizing of animations for video

The step from mere computer animation to an animation fit for



video implies some difficulties: the line interlaced scanning method used to generate a video image causes motion artefacts if the original animation was created on a computer monitor without line interlacing.

This problem arises from almost every modern computer animation, and any professional video animator can tell you a thing or two about that.

The video output module enables you can quickly and easily create or correct the critical image sequences - directly on the video screen.

Please remember that the concentrated watching of a video screen causes extreme stress to your eyes - so have a break every now and then.

E. g. test pattern generator

Using a Mac as a video test pattern generator may seem a slightly snobistic approach to you but actually this is just a side product of the nominal applications. For a video test pattern is nothing but a special kind of computer graphic...

And there is also a technical necessity: The Mac must be able to generate video test patterns just for testing the output module.

E. g. presentations

Whether a presentation in a large or small circle or at an exhibition - today a presentation is a carefully styled choreography of optical and acoustical backgrounds to draw everybody's attention to the presentator and above all, to the object of the presentation.

Computer graphics and animations represent the state of the art for this purpose, and so do beamers which allow for an adequa-

te visualisation at large scale. But still VGA beamers are not part of the standard equipment even at big events and must be hired in addition to the place (usually you will be charged separately for such equipment).

But video equipment is available almost anywhere. And with our small module in your Mac, you will even be able to use it.

E. g. trainings/seminars

Computer demonstrations are becoming increasingly important in education and advanced training. The possibility to use even animated image sequences, not just slide shows, is a major asset to the visualisation of complex issues.

But again, often there's no computer beamer whereas video equipment wouldn't be a problem at all - if only the computer could supply video signals...

With Pablo, your Mac can do that.

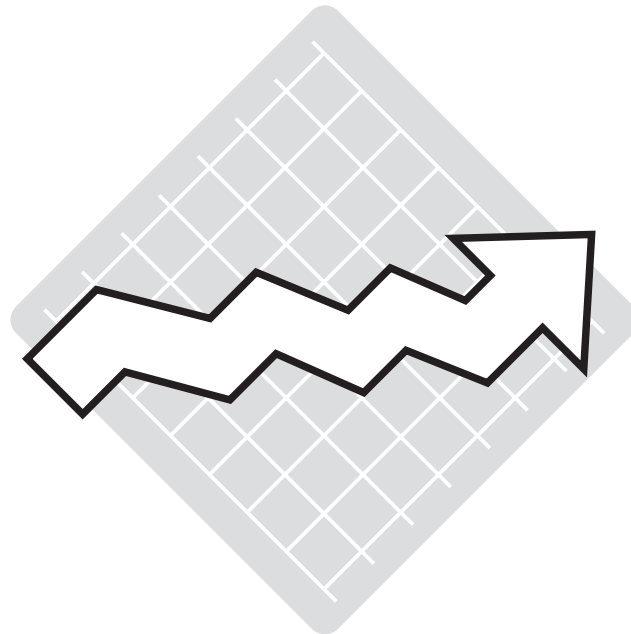


3.3 Particularities

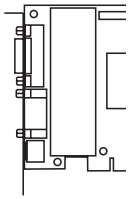
We would like to point out once more that for using Pablo the MacPicasso 340 / MacPicasso 540 may be connected only with a VGA or MultiScan monitor that accepts low frequencies down to 31 kHz horizontal and 50 Hz vertical frequency.

Any other monitor is unlikely to produce an image but likely to get damaged.

For the output of a video signal, the "sync on green" feature of the MacPicasso is suppressed.



4. Technical specification



Pablo, the video-out module

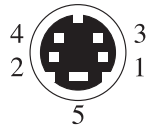
- selectable video standards (TV standards): NTSC, NTSC-EIA, PAL-B, -G, -I, or PAL-M
- selectable video output signal: S-VHS or CVBS (Cvideo)
- selectable projection: overscan, underscan or fit-screen
- selectable two-step flicker filter
- software positioning of the video image (orientation correction)
- hardware functions for blackburst and blueburst
- hardware test patterns (grey ramp and color bar)
- optional software test patterns



Video connectors

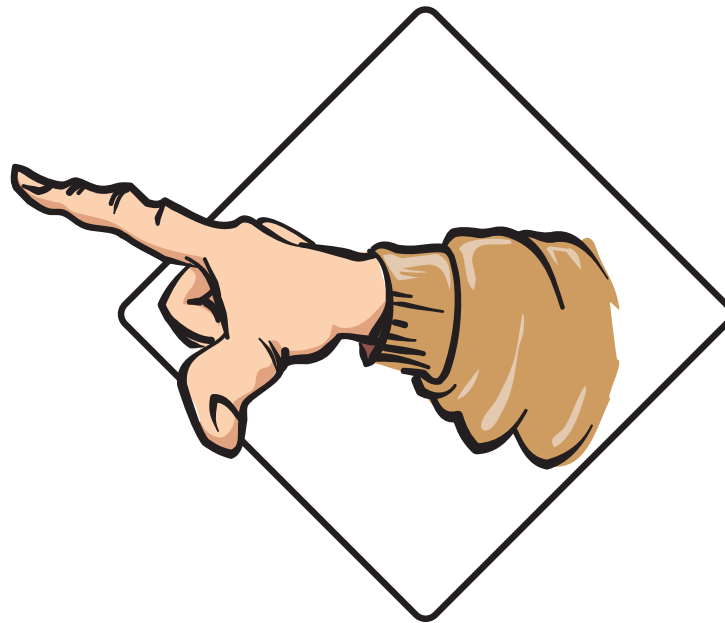
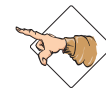
S-VHS, Y-C socket

- | | | | |
|---|-----------------------|---|-----------------|
| 1 | ground | 4 | chrominance (C) |
| 2 | ground | 5 | ground |
| 3 | luminance (Y) or CVBS | | |



This female connector is used only when Pablo is fitted.





5. Help and addresses to contact

Help and addresses to contact



Should you have a problem or question related to MacPicasso/MacPablo, please refer to this manual first and try to find a solution. If this manual fails to help you please contact your local dealer. Should he be unable to assist you or should you have purchased the MacPicasso/MacPablo directly from Village Tronic our technical support department will be pleased to give you any information required. Their preferred communication medium is e-mail. The e-mail address is:

support@village.de

Of course, you can get in touch with us by fax, mail or phone - see the address and fax/phone numbers below. We kindly ask for your understanding that the telephones of our technical support department are not attended at all times.

You will also find us in WWW in <http://www.villagetronic.com> where we present new program versions for the MacPicasso to you and provide further information.

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