

Auto3D Driver

V4.20

User's Manual

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Basic System Requirements

1. Pentium 4 /2.0GHz
2. 1GB Free Hard Disk Space
3. CD ROM
4. nVidia GeForce4 or -FX graphics board with the latest original nVidia driver.
5. 17" with 0.264mm dot pitch (or 15" 0.297mm dot pitch) LCD Monitor
6. Windows 2000/XP Home/XP Pro.
7. Direct3D based full screen 3D application

Recommended System Requirements

1. Pentium 4 /2.6GHz or faster
2. 512MB System RAM or more
3. DVD ROM
4. GeForce FX 5900 with 128MB Graphics memory
5. Windows 2000/XP Pro.
6. DirectX 9

Hardware Security Dongle

Auto3D Driver will be locked to a USB Security Dongle. The USB security dongle is equipped with Auto3D Kit and Auto3D Display products.

Connect the Dongle when you install the program.

Installing the program without dongle, setup will proceed without any problem.

Connect the Dongle before you start the program after installation.

Start the program without dongle, program will not be launched and screen prompts an error message "**Security Dongle Not Found**".

Note : This security dongle MUST be always connected to the USB Port while Auto3D Driver is running, otherwise Auto3D Driver will be disabled.

Installing Auto3D Driver

1. Insert the Auto3D Driver CD into CD-ROM drive and program will auto-run.
2. If auto-run does not appears, please open the CD-ROM folder and double-click on the "install.exe"
3. Setup will install shortcut icons on the desktop and "Start/Programs/Auto3D Driver" and "Start/Programs/startup" menu.
4. Reboot your PC

This should install the Auto3D Driver software in the directory "*Auto3D Driver*" on hard drive.

Note: Install the Acrobat Reader Software to read user's manual if not installed yet in your PC.

Uninstalling Auto3D Driver

1. Go to "Start/Programs\Auto3D Driver" Menu and select **Uninstall Auto3D Driver**
2. or go to "Add/Remove Programs" in the Control Panel/ and select the item: **i-Art Auto3D Driver**.

Checking the Proper Installation

As soon as the Auto3D Driver is installed and the system has been rebooted, a splash screen will inform you that the Auto3D Driver is loading and a small Auto3D Driver icon will appear in the system tray (the lower right corner of your screen).

When it is COLORED, the Auto3D Driver is active and ready.

When it is GREY, the Auto3D Driver is disabled for one of the following reasons:

- You have ever disabled it manually.
- Your system doesn't meet the system requirements (see page 3).
- Hardware Security Dongle does not connect to USB port.

When it is active simply start the desired Direct3D application in full screen mode. A splash screen will inform you that the Auto3D Driver is loading!

You can Disable/Enable the Auto3D Driver anytime by right clicking on the small tray icon and select "disable" or "enable" in pop-up menu.

If it is not there at all, double click the Auto3D Driver icon on desktop or select "Auto3D Driver" in the "Start/Programs/Auto3D Driver" folder to run Auto3D Driver.

1. Introduction to Auto3D Driver

Auto3D Driver is one kind of driver which can real time convert the software like PC game based on Windows Direct3D API into one which can be applied to our "Auto3D Display" and "Auto3D Kit" without any modifications. This driver is currently bundled with "Auto3D Display" and "Auto3D Kit" (LCD Monitor).

Before using it, please make sure that you have to meet its recommended system requirements to get the best efficiency. If so, with the driver you may enjoy more than one thousand of PC Direct3D games available in the world. And, that will substantially make your applications of "Auto3D Display" and "Auto3D Kit" more funs.

Key-Features:

- Real time native 3D stereo generation
- Drives autostereoscopic displays
- Control panel inside your 3D-application
- Dynamic Depth Optimization
- Adjustable stereo depth and screen plane
- Support for DirectX9 applications
- Stereo screenshot and on/off hot button
- Test screen hot button

2. How does Auto3D Driver work?

The Auto3D Driver links itself between your 3D-application and the graphics driver. Each graphics command is then passed through the Auto3D Driver that uses it to draw the required views.

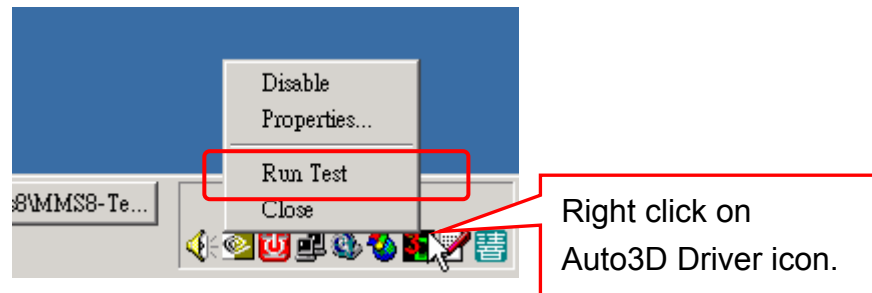
The newly generated images are blended together into one picture (e.g. for autostereoscopic displays).

The difference is stunning: When you activate the Auto3D Driver, your application suddenly appears life like and with true depth when watched on an Auto3D viewing system.

3. How To Use

Run the Auto3DTest first

You can right click the Auto3D Driver tray icon. A menu will come up. And, select “Run Test” to execute the Auto3DTest.



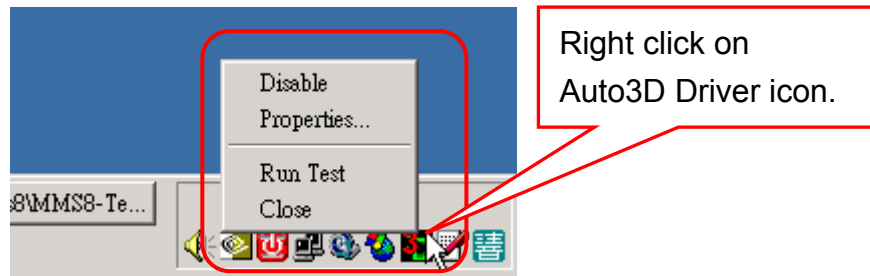
When you run the Auto3DTest application, you should see a spinning more3D logo - in stereo of course!



If not, please check the troubleshooting section!

Taskbar Tray Icon

When you right click the Auto3D Driver tray icon, a menu will come up as follows.

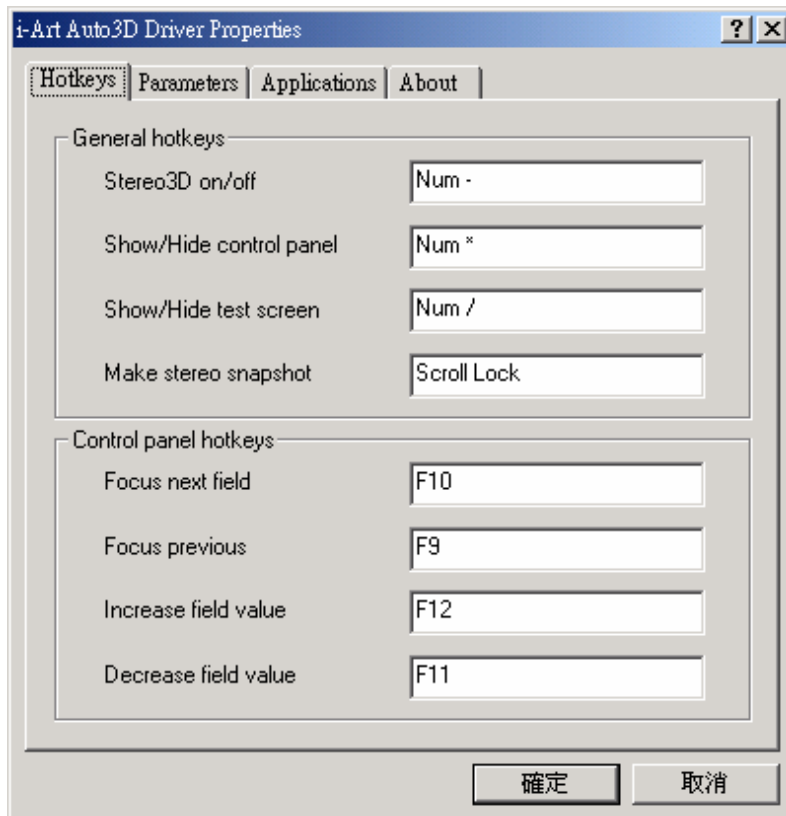


Disable:

When disable the Auto3D Driver, this field will show “Enable” if Auto3D Driver current state is disable.

Properties...:

Pop up the Auto3D Driver Properties setting dialog as follows.



Run Test:

Execute the “Auto3DTest” to test the 3D screen.

Close:

Exit the Auto3D Driver.

Taskbar Properties...

Hotkeys

When you right click the Auto3D Driver tray icon, a menu will come up. Select the “Properties...” and then “HotKeys”.

The default keys are:

Stereo3D on/off → NUM-

Show/Hide control panel → NUM*

Show/Hide test screen → NUM/

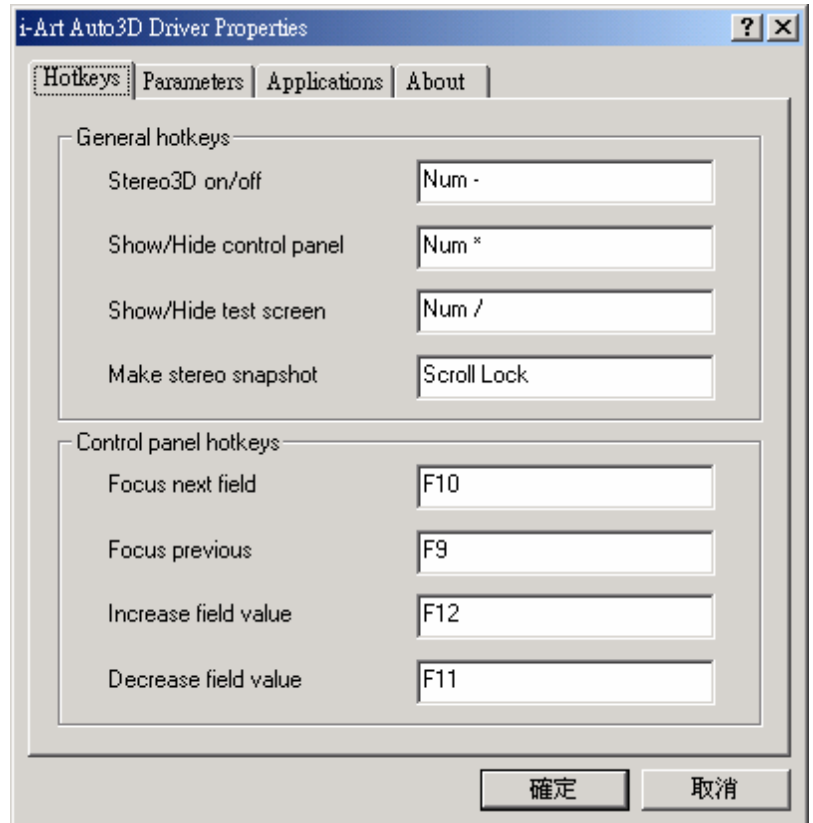
Make stereo snapshot → Scroll Lock

Focus next field → F10

Focus previous → F9

Increase field value → F12

Decrease field value → F11



These “**General hotkeys**” will only be active within your 3D-application and do the following:

Stereo3D on/off - toggles the 3D stereo effect

Show/Hide control panel - shows or hides the stereo control panel. If the stereo control panel does not show, the Auto3D Driver software is not active.

Show/Hide test screen - shows or hides a screen for easier display alignment.

Make stereo snapshot - Creates a stereo screenshot and saves it in the subdirectory “scrshots” of Auto3D Driver install directory, and the file name is “APPLICATION_nnn.bmp”, for example: If 3D application “TEST_AP.exe” is running, then first screenshot will create “TEST_AP_001.bmp”.

The following “**Control panel hotkeys**” will only be active when the stereo **Control Panel** is visible:

Focus next /previous field - moves to the next or previous field

Increase/Decrease field value - changes the content of the active field.

Taskbar Properties...

Parameters

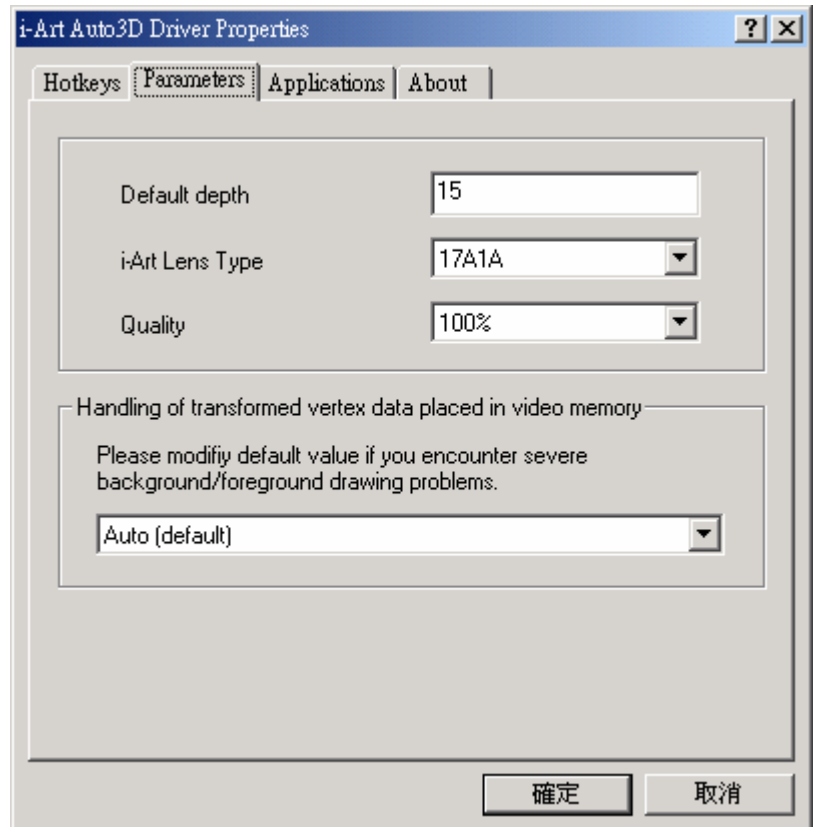
When you right click the Auto3D Driver tray icon, a menu will come up. Select the “Properties...” and then “Parameters”.

The default values are:

Default depth → 20

i-Art Lens Type → 17A1A

Quality → 100%



These parameters will be applied to the Auto3D Driver in general.

Default Depth - This is the most basic 3D stereo setting. It controls the maximum amount of pixels that the L/R-stereo images are shifted. Increasing this value will increase the perceived depth of the scene and vice versa. At a value of 0 there will be no 3D stereo effect at all.

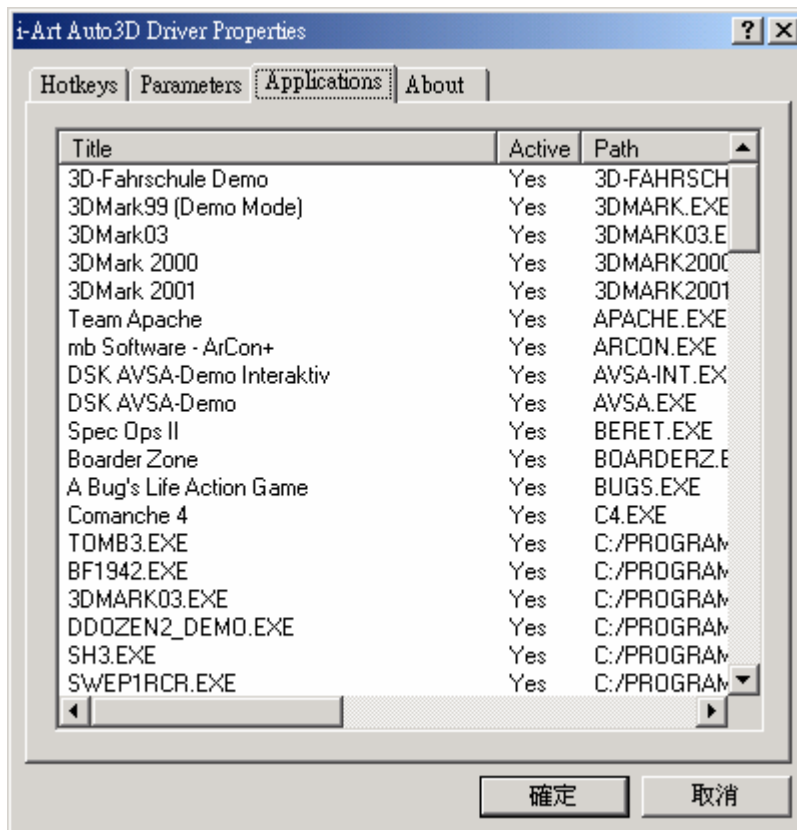
i-Art Lens Type - Here you have to choose correct lens type of i-Art’s “Auto3D Display” or “Auto3D Kit” product you are using.

Quality – 3D rendering quality setting. The higher the quality, the better the rendering 3D effect, but the higher the quality the worse the rendering speed.

Taskbar Properties...

Applications

When you right click the Auto3D Driver tray icon, a menu will come up. Select the “Properties...” and then “Applications”.



You can quickly find out which application settings have been saved with the Auto3D Driver.

This is a non-interactive list of applications that have been tested with the Auto3D Driver and that come with default values to optimize the 3D stereo effect.

If you find your application in here, it is not recommended to modify the stereo settings except for the stereo depth according to your display size.

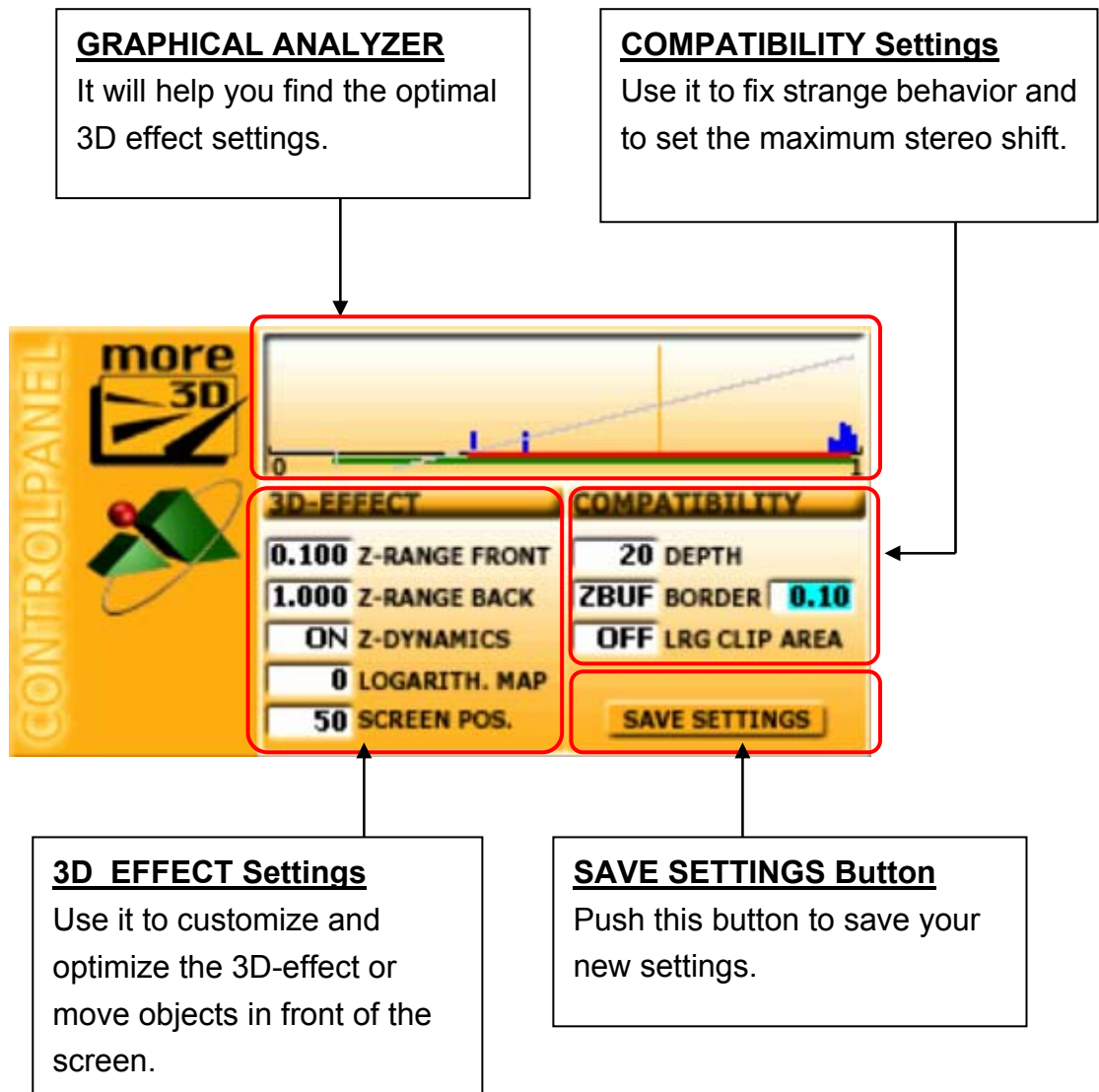
Saving your own settings with the Auto3D Driver stereo control panel will overwrite these default settings.

When you save the settings for a new application, it will be added in this list.

Auto3D Driver Stereo Control Panel

The Auto3D Driver stereo Control Panel “CONTROLPANEL” will only appear inside of your 3D application. You have to push the corresponding hotkey (default hotkey “NUM*”, see page 8) to display the control panel.

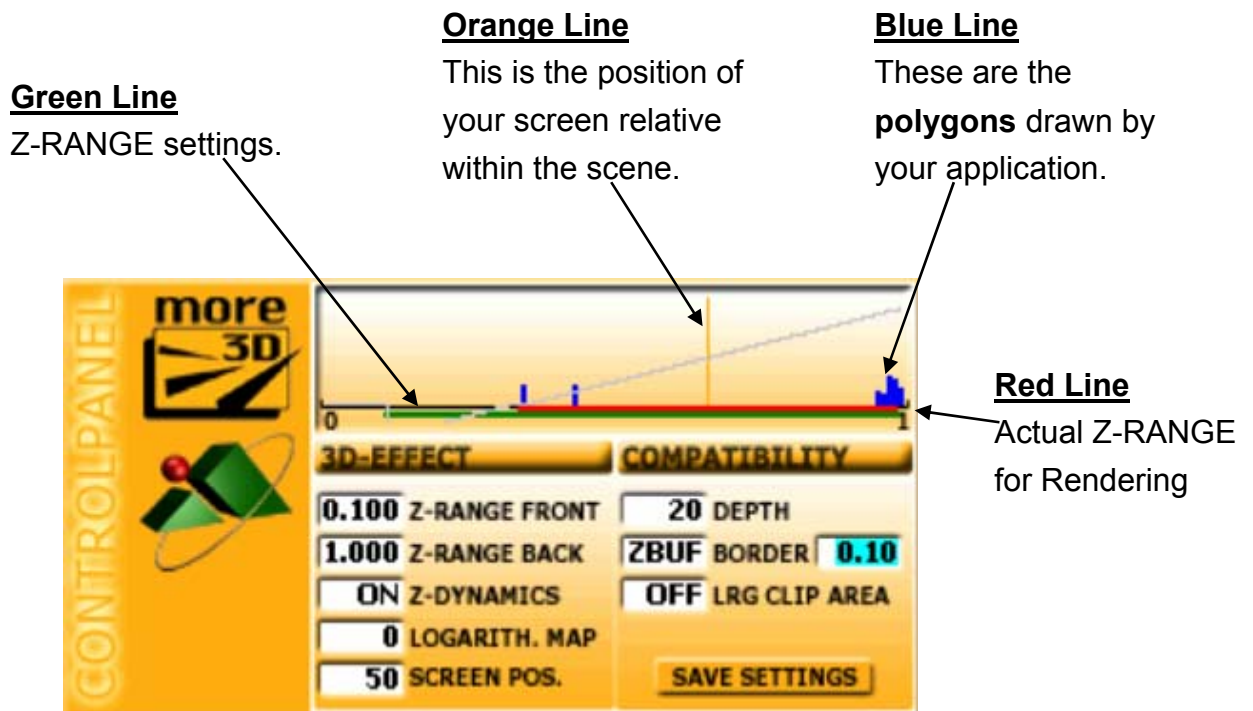
It features three main sections: the GRAPHICAL ANALYZER, the 3D_EFFECT settings and the COMPATIBILITY SETTINGS plus a “SAVE SETTING” button as follows.



Control Panel

Graphical Analyzer

The “Graphical Analyzer” will help you find the optimal 3D effect settings. Each Direct3D based application draws objects which consist of polygons in a depth area between 0 and 1 where 1 corresponds to “far away” and 0 to “very close” to the viewer.



Blue Lines: The ANALYZER uses **blue lines** to indicate where exactly (position of the blue lines) these polygons are drawn and how many polygons (height of the blue lines) are drawn at that position.

Vertical Orange Line: The ANALYZER uses **orange line** to indicate your setting of the display position. Objects left of that line will appear in front of your screen, objects to the right appear behind your screen!

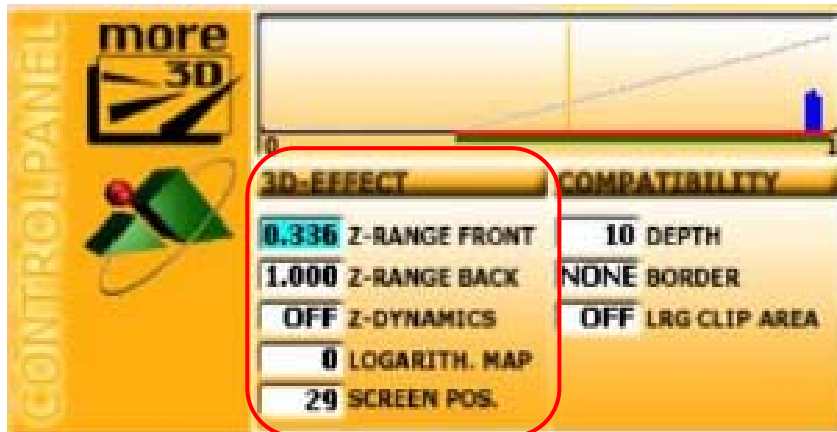
Horizontal Green Line: The ANALYZER uses **green line** to indicate your Z-RANGE settings.

Horizontal Red Line: The ANALYZER uses **red line** to indicate the actual Z-RANGE for rendering and it corresponds to the Z-DYNAMICS automatism if enabled.

Control Panel

3D-EFFECT Settings

The 3D-EFFECT section is used to customize and optimize the 3D stereo effect.



Z-RANGE FRONT and Z-RANGE BACK -

By default the Auto3D Driver applies a maximum Z-RANGE (i.e. maximum perceived depth) to objects rendering with a depth of 1 (**Z-RANGE FRONT =0** and **Z-RANGE BACK =1**)

However, many applications do not use the whole Z-range, but e.g. only use the range between 0.8 and 0.9. This would result in a poor 3D stereo effect because no object would receive the maximum (or minimum) stereo shift.

So you may modify the range setting values **Z-RANGE FRONT** and **Z-RANGE BACK** (see **vertical green line**). It will then “stretch” this range to achieve the highest stereo dynamics possible.

Z-DYNAMICS - lets the Auto3D Driver try to dynamically determine these values for you (see the **horizontal red line** in the ANALYZER). This only works with **HARDWARE T&L** not active!

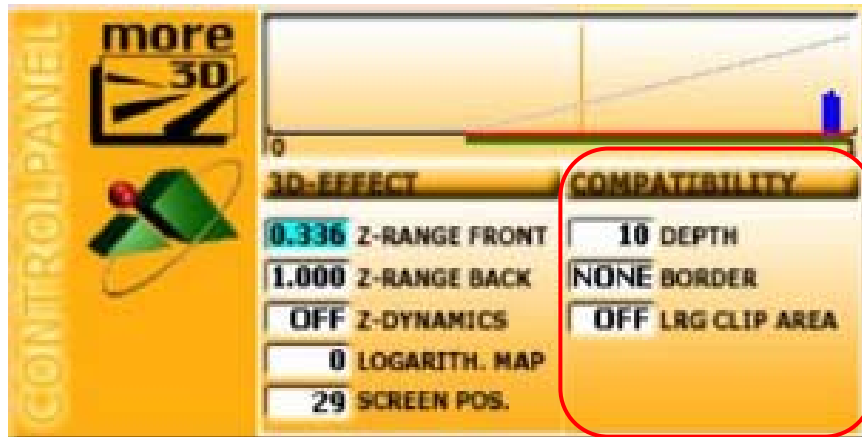
LOGARITHMIC MAP – This setting applies the stereo shift not linear but logarithmic with the given strength.

SCREEN POSITION – This setting (see **vertical orange line**) is the setting to move objects out of the screen! The default value is 0. All objects drawn left of the vertical line will be drawn in front of the screen!

Control Panel

COMPATIBILITY Settings

The 3D-COMPATIBILITY section is used to edit general compatibility settings, set the maximum stereo shift and save your settings.



The max **DEPTH** parameter is the maximum stereo shift that will be applied to an object. To remain comfortable the visible shift on your screen should not exceed default value too much.

Clip **BORDER** blanks out the left and right screen border to avoid flickering. You may disable the clipping to see that “lost” portion of the screen, but it will then only appear in one eye.

In rare cases, scenes where you look through an opening such as a door may have problems with the visible content behind that opening. In such a case, please enable the **LARGE CLIP AREA** parameter, so objects behind the opening can remain visible for both eyes.

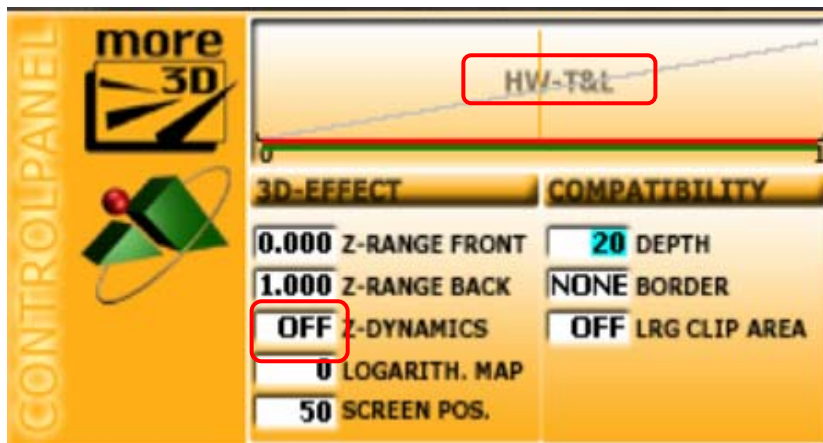
When you have changed any of the values, the **SAVE SETTINGS** button will appear. Press the F11 or F12 Hotkeys (hotkey: **Increase field value** and **Decrease field value**, see page 8) to save the settings.

Optimizing the 3D-Stereo-Effect

Optimizing the 3D stereo effect requires some patience and a good understanding of what **Z-RANGE** and **DEPTH** values are and how the Auto3D Driver works.

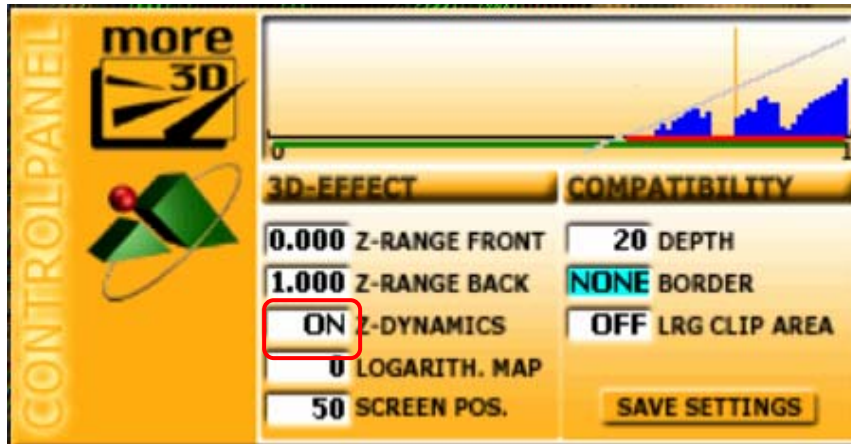
Read the previous manual pages to obtain some background. Then follow these steps to find out which settings are optimal for you, your audience and the application that you want to view:

1. Run the 3D application of choice and open the control panel (default hotkey: NUM*)
2. Check if the Graphical Analyzer shows **HW-T&L** as below.

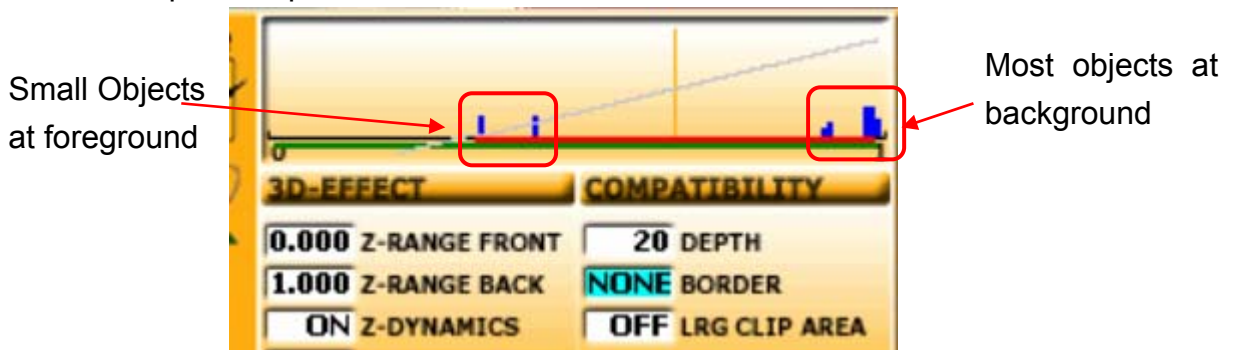


3. If **HW-T&L** shows up, it will mean that the application uses the VGA hardware to perform **Transform & Lighting**. In such a case, the **Z-DYNAMICS** will be set to **OFF** automatically. Please follow the below steps to optimize 3D effect..
 - (A) Confirm the **Z-DYNAMICS** is set to **OFF**.
 - (B) Set **Z-RANGE FRONT** to "0.000" and **Z-RANGE BACK** to "1.000".
 - (C) Do not worry if the screen does not show you any clear picture yet;
 - (D) Start reducing the **Z-RANGE FRONT** value slowly, from 1 downwards, until you do see one clear and good 3D picture. Decrease **Z-RAGE BACK** slightly to push far objects even further away.

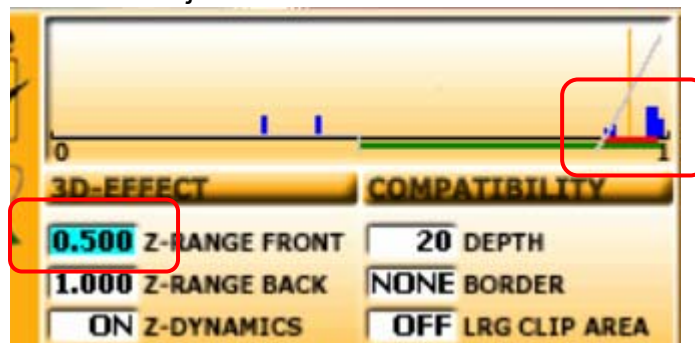
3. If **HW-T&L** does not show up. It will mean that the application uses the software rendering. In such a case, the **Z-DYNAMICS** will be set to **ON** automatically. Please follow the below steps to optimize 3D effect.



- (A) Confirm the **Z-DYNAMICS** is set to **ON**
- (B) Set **Z-RANGE FRONT** to “0.000” and **Z-RANGE BACK** to “1.000”
- (C) In such a case, most Direct3D applications can perform good 3D effect.
- (D) For some cases, if there are few objects like text, flowers in front of Z-RANGE and far away from most objects near the background as shown on the following figure, then it will perform poor 3D effect.



In such a case, we may reduce Z-RANGE (green line) to restrict the range (increase Z-RANGE FRONT value) which is auto-adjusted by Z-DYNAMICS to force Z-DYNAMICS to give up the front small objects so that Z-RANGE (red line) can correctly locate most 3D objects in the scene as shown below.

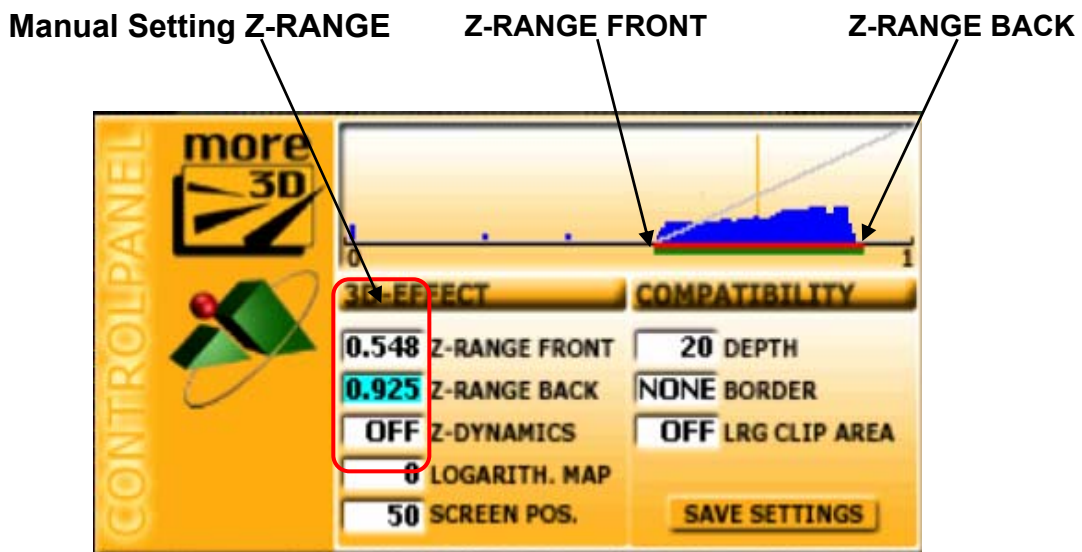


4. During software rendering if we are not satisfied with the 3D effects auto-adjusted by “**Z-DYNAMICS ON**”, (That is very probably caused by too fast object movement at foreground and background so as to slow down **Z-DYNAMICS** auto-tracking.) we may adjust the settings by manual as follows.

(A) Set **Z-DYNAMICS** value to **OFF**.

(B) Watch the Graphical Analyzer and determine where the most objects are drawn.

Then set the values of **Z-RANGE FRONT** and **Z-RANGE BACK** to match this area roughly as below.



5. If you like more objects to appear in front of the screen, please increase the **SCREEN POS.** value until you are happy with the visible result. (decrease the **SCREEN POS.** value will cause more objects to appear back of screen)

Note: Make sure the DEPTH value is not set too large to avoid eye irritations. And, please don't forget to save your settings when done!

Troubleshooting

Frequently Asked Questions

Most problems can be corrected using the Auto3D Driver Stereo Control Panel if the system requirements are being met.

Q: The Auto3D Driver tray icon is grey!

A: The Auto3D Driver is inactive due to one of the following reasons:

1. You have disabled it in the tray menu.
2. Hardware Security Dongle does not connect to USB port.
3. Your system does not meet the system requirements on page 3.

Q: When I start the application there is no 3D effect.

A: The Auto3D Driver could not initialize due to one of the following reasons:

1. This is not a Direct3D based application. (OpenGL will not work!)
2. It is not a full screen application (like some VRML viewers). Try switching to full screen.
3. Hardware Security Dongle does not connect to USB port.
4. The lens type is not correctly set up. (see page 9)

Q: The 3D-stereo effect is poor.

A: Try optimizing the 3D effect settings as described on page 15. Likely your application does not use the whole Z-RANGE, but usually only the very last area (often even between 0.9 and 1).

Q: The stereo effect is too strong.

A: Either your stereo **DEPTH** or your **Z-RANGE FRONT** is set too high.

Q: I see some overhead items twice.

A: Set **SCREEN POS** to more front. (decrease the **SCREEN POS.** value)