



zSpace Operations Manual

zSpace System Software Versions 2.10 and Later
Updated August 2013

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Welcome to zSpace

Congratulations on becoming the newest member of the zSpace community!

Before you set up your system, we encourage you to [register](#) or log in to the zSpace.com website for information on our development programs, and detailed technical documentation from our support site.

Our [support site](https://support.zspace.com) (<https://support.zspace.com>) contains software downloads, detailed technical documentation, and additional reading to support a wide variety of questions you might have. Please visit and ask technical questions in the [Community Forum](#) where you will find other zSpace developers and users.

Thank you and enjoy your experience in zSpace!

Setting up your zSpace System

Introduction

Our [zSpace System Software](#) includes all the elements you need for an all-encompassing stereoscopic 3D experience. You are only a few steps away from a revolutionary, immersive, and interactive 3D environment.

The setup instructions described in the following section are for new users of zSpace. It covers connecting the hardware, installing software and firmware, and running the zSpace Experience demo application.

Hardware

The first step is to set up your zSpace display. Follow the illustrated Quickstart Guide that was included in the original packaging for your zSpace system. You can also download another copy from [the Documentation section](#) of the zSpace support site.

1. Confirm that you have all hardware components. Your system includes the following



components:

- zSpace display
 - zSpace eyewear with markers (regular glasses and clip-ons)
 - zSpace stylus with cable and ferrite bead
 - zSpace stylus holder
 - Power supply with corresponding cable
 - USB cable
 - DVI cable
2. Prepare the zSpace stylus by following the Quickstart Guide (step 2).
 3. Plug in all the cables **except the USB cable**. (The software installation process will tell you when to connect the USB cable between your zSpace display and PC.)

Optionally, instead of using the DVI cable, connect the zSpace display to the PC via the Display Port. (The Display Port cable is not provided). On the back of the display, you may need to remove a plug that covers the Display Port connection.

4. When you finish connecting the zSpace system hardware, download the zSpace software and firmware and install them as described in the next section.

Software and Firmware

You can download all of the software and firmware to run zSpace from the [Software Downloads](#) section of the support site. First, download and run the [zSpace System Installer](#) as described below. Later you can download zSpace applications.

Note: If you have a previous version of the zSpace System Installer, please uninstall it first. To uninstall the zSpace System Installer, select the zSpace folder in the Start Menu. From the zSpace System folder, select Uninstall.

Double-click on the zSpace System Installer to run it and follow the steps in the Setup Wizard. If you need help, refer to the detailed steps below:

1. After closing all other programs, click on Next.
2. Review the software licensing agreement, then click on I Agree to continue.
3. Choose the components to install:
 - The zSpace System includes the Tracker software and the Control Panel, which you



need to run zSpace applications.

- The zSpace Desktop Wallpaper Images are optional.
4. Choose whether to install the zSpace System for anyone running your machine or just for yourself. In other words, you can keep your copy of zSpace private.
 5. If needed, change the installation location for the zSpace System. The default is recommended unless you have a special purpose for changing it.
 6. If desired, change the Start Menu folder for the zSpace System shortcuts, then click on Install.
 7. When the Device Driver Installation Wizard appears, click on Next. You may see a warning during the driver installation process. Click on Install to proceed.
 8. When the device drivers are installed, click on Finish.
 9. When prompted to update the zSpace Display Firmware, click on Yes. At this point, you are prompted to **connect the USB to the zSpace display**. After you connect it and make sure it is powered on, click on Yes to continue.

All necessary firmware updates are automatically installed. The process may take a few minutes. **Do not unplug any cables or power down the zSpace display during this process.**

If you see any of the following warnings, respond as directed:

- If the zSpace display is not detected, wait a moment, and click on Retry.
 - If you see a warning not to power down, click on Yes to continue.
 - You may see a Windows message requesting access. **It is very important that you approve access to assure stylus communication.**
 - When Windows prompts you to restart, choose Restart Later. **Do not interrupt the zSpace installation process.**
10. Click Close on the zSpace Tracking Setup to complete the final steps.
 11. Click Finish on the zSpace System Setup Wizard.

The zSpace System Check window appears. Refer to the next section for details.

zSpace System Check

The zSpace System Check is a key feature of the control panel. It verifies that your zSpace display is set up properly and that your zSpace eyewear and stylus function correctly. The zSpace System Check launches automatically after you complete the zSpace System installation process.

Some steps in the System Check require the zSpace stylus, the zSpace eyewear, or both. The following icons will indicate when to use the stylus and eyewear:



The zSpace eyewear are not required during this step.



The zSpace eyewear are required and should be worn during this step.



The zSpace stylus is not required for this step but should be connected to the zSpace display.



The zSpace stylus is required and will be used during this step.

On the Welcome screen, click on Next to start the System Check. Follow the instructions on screen. If a test fails, the System Check will end and a message box will display a link to the zSpace support site for further information.

If you need help, refer to the detailed steps below:

1. The first test checks the display. You will be presented with a shaded rectangle. Click on the button indicating the color of the rectangle.
2. The second test checks the stereo in the system. Put on the zSpace eyewear and indicate if the panel on the right has depth and dimension. If so, click on Yes. If not, click on No.
3. The third test checks the zSpace eyewear. Put on the eyewear when instructed and click on Next. When the crosshairs appear on screen, move your head to move the crosshairs into all

of the circles, one by one.

- If you are successful touching all circles, your eyewear tracking mechanism is functioning properly.
 - If you are unable to complete the exercise, indicate that a problem has occurred by pressing the space bar. As with all error conditions, you will be directed to the technical support site for further information.
4. The fourth test checks the stylus buttons. As you click on each stylus button, confirm it lights up in the System Check picture. Once all three buttons are recognized, use the mouse to click on Next.
 5. The fifth test checks the stylus LED and vibration. If the LED lights on the stylus match the lights in the System Check picture, click on Yes.

If the stylus vibrates when indicated by the System Check picture, click on Vibration.

6. The sixth test checks that stylus tracking works correctly. This is very similar to the eyewear tracking test.

Click on Next to begin the test. Move the crosshairs into each circle with the stylus. If the test is successful, you have completed setting up your zSpace system. Click Finish with the mouse.

zSpace Control Panel

You can rerun the zSpace System Check and perform other tasks in the zSpace Control Panel. To open the zSpace Control Panel, do one of the following:

- Select ZSControlPanel from the Start Menu.
- Open the Windows Control Panel, then select In addition to the zSpace Control Panel.

From here, you can:

- Run the zSpace System Check
- View system information
- Install firmware updates
- Restart the zSpace System
- Change the zSpace stylus buttons' mapping
- Enable or disable the stylus LED and vibration

Getting Acquainted with zSpace Experience

zSpace Experience Installer

zSpace Experience is a demo application you can download and install. It is an ideal introduction to zSpace. It shows the key features and benefits of zSpace using a simple and fun approach. A step-by-step tutorial explains how to navigate in the environment and how to use zSpace tools.

Download [zSpace Experience](#) from the Software Downloads section of the zSpace support site.

Double-click on the file you downloaded to install zSpace Experience. Follow the instructions on screen.

zSpace Experience Software

To run zSpace Experience, select the zSpace folder in the Windows Start Menu. From the zSpaceExperience folder, select zSpaceExperience.

- Once the application loads, an opening scene appears with instructions. Follow the instructions to become familiar with using the stylus and different tools for selecting, scaling, and so on.
- While in zSpace Experience, the following key functions are available:
 - F - Display frame rate toggle (useful for measuring GPU performance)
 - M - Manual stereo left/right frame swap
 - R - Reset the application to the main startup scene
 - +/- Lengthen or reduce the stylus raycast beam
 - ESC - Exit zSpace Experience
- To exit zSpace Experience, press the ESC key on the keyboard. The application does not save information, so the next time you run zSpace Experience, you start at the beginning.

zSpace Product Specifications

Features

- High-definition stereoscopic display with full resolution images rendered for each eye
- Lightweight passive eyewear
- Full motion parallax with sensors tracking the viewing angle of the user
- Uniquely designed stylus for managing all interactions in 3D space
- Development platform for creating new applications and integrating new input devices

Specifications

- zSpace display - 24 inch HD LCD (1080p 120Hz) with built-in tracking sensors
- Stylus with 3 buttons and integrated infrared LED
- Polarized passive 3D eyewear
- 1-year standard warranty with option for 3-year extended program

PC System Requirements

To see complete and updated hardware requirements, please see the [zSpace System Requirements](#) in the Documentation section of the zSpace support site.

zSpace Supported Graphics Cards

zSpace works with most AMD ATI FirePro and NVIDIA Quadro graphics cards. Please check the [zSpace Supported Graphics Cards](#) in the Documentation section of the zSpace support site for a list of specific graphics cards.

If you are an application developer, assess the performance requirements of your specific application



when choosing a card.

Safety Instructions

Please carefully review the safety instructions described in the following section. This information is provided to help you experience the best features of zSpace and prevent problems that may decrease performance.

Failure to follow the instructions might void the limited warranty agreement, in which case zSpace will not be responsible for replacing or repairing the product. Disregarding specific safety instructions may also cause injury and serious damage to health.

Usage

- Only use the power adapter provided with zSpace. Using a different type of power adapter may cause damage with the risk of fire. Be sure to use a grounded power source.
- When moving or adjusting the zSpace display, be careful when grasping the upper plastic enclosure. Excessive pressure could misalign or damage the sensors.
- Mishandling or dropping the zSpace display may cause alignment problems with the tracking device.
- Do not remove the stand from the zSpace display. Improper use could injure you or damage the stand.
- Do not open or disassemble the zSpace display or any hardware components associated with zSpace. In some cases, there is risk of electrical shock. Opening the system or damaging components will void the warranty.
- Avoid placing sharp or heavy objects on the zSpace monitor to prevent scratching the display surface or causing breakage.
- Avoid dropping the stylus or catching the cable on immovable objects.
- When using zSpace eyewear, be careful not to remove or damage the markers, which are critical to headtracking.

- If the zSpace display's screen is damaged for any reason, do not touch any liquid emanating from the unit. In case of contact with skin, rinse or flush any affected surfaces immediately with running water. Please consult a physician in all cases.

Basic Operation

- zSpace works best in moderate lighting conditions. Sunlight and bright lights within the view of the sensors can affect overall performance of the tracking mechanisms. Avoid bright lights for best results.
- For best zSpace viewing performance, allow the display to warm up. This will occur after the display has been on for more than 90 minutes.
- Be careful when connecting the cables on the back of the zSpace display. It is possible to inadvertently plug the USB cable into the RJ-11 port, which could cause a short circuit and render the product inoperable.
- Place the zSpace display in a location where the power supply cord is easily accessible so you can quickly disconnect the power source in case of an emergency.

Note: The power button on the zSpace display puts the display in sleep mode. It does not turn the display off.

Environment

- Temperature : 10 - 40 degrees C (50 - 104 degrees F)
- Humidity : 10 - 80 %, non-condensing (dry location)
- Do not operate or store zSpace hardware in any location where temperature changes are severe.
- Peak performance will be achieved in office-like environments, with moderate lighting and controlled temperatures.

Physiological Effects

- Avoid long hours of prolonged use of 3D applications which may cause eyestrain, mild fatigue,



and in extreme cases, illness and seizures. Do not engage in operating vehicles or machinery when feeling any of the described effects as a result of using the system.

- zSpace disclaims any and all liability to users for any dizziness, nausea, headaches and/or other sensations of physical discomfort or illness that a user may experience as a result of use of the zSpace system.
- In some cases, viewing objects in 3D stereo may cause disorientation and the objects may appear blurry. One possible reason is the reversal in the detection of the left and right frames in the specific application. For some applications, pressing the “M” key may reverse the stereo. By toggling between the displays for the left and right eyes, it may be possible to find the correct setting.

Caring for zSpace

- Keep the zSpace display’s surface clean. Use an anti-static or slightly damp cloth with light pressure. Regular cleaning will help prolong the life of the screen surface.
- Avoid the use of cleaning products with heavy alcohol-based cleaning agents, especially on the screen.
- Use a lint-free cloth to remove any dirt or residue from the zSpace eyewear.
- Keep zSpace system in a clean, dry place and avoid extremes in temperature.
- Avoid contact with liquids.
- When cleaning, disconnect the zSpace display from the power source.



Regulatory Statements

Copies of our current [Regulatory Certificates](#) can be found on the zSpace support site.

FCC Certification

Your zSpace product is marked to indicate its compliance class:

- Federal Communications Commission (FCC) -- USA

Please read the appropriate section that corresponds to the marking on your zSpace product before attempting to install the product. The [Declaration of Conformity](#) for zSpace can be found in the Regulatory Statements section of the zSpace support site.

FCC Class A Notice (Rev D hardware and earlier)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Modifications: Any modifications made to this device that are not approved by zSpace, Inc. may void the authority granted to the user by the FCC to operate this equipment.

FCC Class B Notice (Rev E hardware and later)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:



1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Modifications: Any modifications made to this device that are not approved by zSpace, Inc. may void the authority granted to the user by the FCC to operate this equipment.

Korean Certification Statements

For FCC Class B Operation

이 기기는 가정용(B급) 전자파적합기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.



Recycling

We request you recycle your zSpace system when replacing it with a newer product or when any hardware component reaches the end of its useful life. Please bring all materials to appropriate recycle centers in your community or region.

For users in the European Union, zSpace provides a recycling process as part of the Waste Electrical and Electronic Equipment (WEEE) program. Please contact zSpace for instructions on how to return the unit to an appropriate location.

You can refer to the [RoHS and WEEE Compliance Statements](#) in the Regulatory Statements section of the zSpace support site.



LIMITED WARRANTY

This warranty applies to customers located in the United States, Australia, Canada (except Quebec), Ireland, New Zealand, U.K., and other English language countries, and countries for which a translation into the local language is not provided.

HARDWARE: zSpace, Inc. (“zSpace”), warrants to the end user (“Customer”) that this product will be free from defects in workmanship and materials, under normal use, for one (1) year from the date of purchase from zSpace or its authorized reseller. zSpace’s sole obligation under this express warranty shall be, at zSpace’s option and expense, to repair the product or part, replace the product or part with a comparable product or part, or if neither repair nor replacement is reasonably available, zSpace may, in its sole discretion, refund to Customer the purchase price paid for the product or part. Replacement products or parts may be new or reconditioned. zSpace warrants any replaced or repaired product or part for a period of ninety (90) days from shipment, or through the end of the original warranty, whichever is longer.

SOFTWARE: zSpace warrants to Customer that each software program licensed from it will perform in substantial conformance to its published program specifications, for a period of ninety (90) days from the date of purchase from zSpace or its authorized reseller. zSpace warrants the media containing software against failure during the warranty period. No updates are required to be provided, but zSpace may choose to provide updates in its sole discretion. zSpace's sole obligation under this express warranty shall be, at zSpace's option and expense, to replace any defective media, to modify the software so that it substantially conforms to the applicable zSpace published program specifications. zSpace makes no warranty or representation that its software products will meet Customer’s requirements or work in combination with any hardware or applications software products provided by third parties, that the operation of the software products will be uninterrupted or error-free, or that all defects in the software products will be corrected. Certain software contains certain open source software and is licensed pursuant to the applicable open source licenses specified in the documentation and is provided WITHOUT WARRANTY OF ANY KIND.

OBTAINING WARRANTY SERVICE: If the product was purchased through a reseller, Customer should contact the reseller for warranty procedures. If the product was purchased directly from zSpace, or if the reseller is unable to provide warranty service, Customer must contact zSpace’s Technical Service Center within the applicable warranty period to obtain a return materials authorization (RMA) number. Dated proof of original purchase from zSpace or its authorized reseller will be required. Products or parts shipped by Customer to zSpace must be sent prepaid and packaged appropriately for safe shipment, and it is recommended that they be insured or sent by a method that provides for tracking of the package. Responsibility for loss or damage does not transfer to zSpace until the returned item is received by zSpace. If Advance Exchange is not available (see paragraph immediately below), the repaired or replaced item will be shipped to Customer, at zSpace's expense, not later than fifteen (15) days after zSpace receives the defective product, and zSpace will retain risk of loss or damage until the item is delivered to Customer. zSpace shall not be responsible for Customer’s software, firmware, information, or memory data contained in, stored on, or integrated with any products returned to zSpace for repair, whether under warranty or not. All returned products or parts that are replaced become the property of zSpace. If zSpace determines that failure of the product(s) was not a result of a defect in materials or workmanship, zSpace reserves the right to charge Customer for time and materials at zSpace’s then-current labor rate, and return shipping charges. zSpace will advise Customer prior to assessing these charges.

Dead- or Defective-on-Arrival. In the event a product completely fails to function or exhibits a defect in materials or workmanship within the first forty-eight (48) hours of installation but no later than thirty (30) days after the date of purchase, and this is verified by zSpace, it will be considered dead- or defective-on-arrival (DOA) and a replacement shall be provided prior to zSpace receiving the defective product (“Advance Exchange”), but only if Customer provides a purchase order number, credit card number, or other method of payment acceptable to zSpace, to be used if zSpace needs to charge Customer for the replacement, as explained below. The replacement product will normally be shipped the second business day after issuance of an RMA that is issued by 3:00 p.m. Pacific Time, and on the third business day following issuance of an RMA that is issued after 3:00 p.m. Pacific Time, but may be delayed due to availability and export or import procedures. The shipment of Advance



Exchange products is subject to local legal requirements and may not be available in all locations. When an Advance Exchange is provided and Customer fails to return the original product to zSpace within fifteen (15) days after shipment of the replacement, zSpace will charge Customer for the replacement product, at list price.

WARRANTIES EXCLUSIVE: IF THIS PRODUCT DOES NOT OPERATE AS WARRANTED ABOVE, CUSTOMER'S SOLE REMEDY FOR BREACH OF THAT WARRANTY SHALL BE REPLACEMENT OR REPAIR OF THE PRODUCT OR PART, OR REFUND OF THE PURCHASE PRICE PAID, AT ZSPACE'S OPTION. TO THE FULL EXTENT ALLOWED BY LAW, THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES, TERMS, OR CONDITIONS, EXPRESS OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, STATUTORY OR OTHERWISE, OR ARISING FROM THE COURSE OF DEALING BETWEEN THE PARTIES OR USAGE OF TRADE, INCLUDING WARRANTIES, TERMS, OR CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, SATISFACTORY QUALITY, CORRESPONDENCE WITH DESCRIPTION, NON-INFRINGEMENT, AND ACCURACY OF INFORMATION GENERATED, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. ZSPACE DOES NOT AUTHORIZE ANY RESELLER, EMPLOYEE, OR ANY OTHER PERSON TO MODIFY OR EXTEND THIS WARRANTY, OR TO ASSUME FOR IT ANY OTHER OBLIGATION OR LIABILITY IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE OR USE OF ITS PRODUCTS.

zSpace shall not be liable under this warranty if its testing and examination disclose that the alleged defect or malfunction in the product does not exist or was caused by Customer's or any third person's misuse, neglect, improper installation or testing, unauthorized attempts to open, repair, or modify the product, or any other cause beyond the range of the intended use, or by accident, fire, lightning, POWER CUTS or outages, other hazards, or acts of God.

LIMITATION OF LIABILITY: TO THE FULL EXTENT ALLOWED BY LAW, ZSPACE EXCLUDES FOR ITSELF AND ITS SUPPLIERS ANY LIABILITY, WHETHER BASED IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), OR ANY OTHER LEGAL THEORY, FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, OR PUNITIVE DAMAGES OF ANY KIND, OR FOR LOSS OF REVENUE OR PROFITS, LOSS OF BUSINESS, LOSS OF INFORMATION OR DATA, OR OTHER FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE, USE, PERFORMANCE, FAILURE, OR INTERRUPTION OF THIS PRODUCT, EVEN IF ZSPACE OR ITS AUTHORIZED RESELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, AND LIMITS ITS LIABILITY TO REPLACEMENT, REPAIR, OR REFUND OF THE PURCHASE PRICE PAID, AT ZSPACE'S OPTION. THIS DISCLAIMER OF LIABILITY FOR DAMAGES WILL NOT BE AFFECTED IF ANY REMEDY PROVIDED HEREIN SHALL FAIL OF ITS ESSENTIAL PURPOSE.

DISCLAIMER: Some countries, states, or provinces do not allow the exclusion or limitation of implied warranties or the limitation of incidental or consequential damages for certain products supplied to certain purchasers, or the limitation of liability for personal injury, so the above limitations and exclusions may be limited in their application to you. When the implied warranties are not allowed to be excluded in their entirety, they will be limited to the duration of the applicable written warranty. This warranty gives you specific legal rights which may vary depending on local law.

GOVERNING LAW AND VENUE: This LIMITED WARRANTY IS governed by the laws of the State of California as such laws are applied to agreements entered into and to be performed entirely within California between California residents, and by the laws of the United States. The United Nations Convention on Contracts for the International Sale of Goods (1980) is hereby excluded in its entirety from application to this Limited Warranty. The Superior Court of Santa Clara County and/or the United States District Court for the Northern District of California shall have exclusive jurisdiction and venue over all controversies in connection herewith.