MOZA AZRS048

MOZA R12 Direct Drive Sim Racing Wheelbase User Manual

Model: AZRS048 | Brand: MOZA

1. Introduction

The MOZA R12 Direct Drive Sim Racing Wheelbase is a high-performance servo base designed to deliver an immersive and realistic force feedback experience for PC video games. With its 12 Nm direct drive torque, advanced motor design, and robust construction, the R12 provides precise and detailed feedback, replicating the feel of real-world racing. This manual provides essential information for setting up, operating, maintaining, and troubleshooting your MOZA R12 wheelbase.

Figure 1.1: Front view of the MOZA R12 Direct Drive Sim Racing Wheelbase, showcasing its compact and robust design.

2. Key Features

- **12Nm Direct Drive Torque:** Provides stable and realistic torque output, replicating steering force from real cars.
- **Direct Drive Servo Motor:** Features a slanted-pole design for ultra-low torque ripple and a wide high-torque speed range.
- **Ultra-low FFB Latency & Steering Response:** Achieved through a 280MHz processor chip and optimized algorithms for precise control.
- **Industrial Conductive Slip Ring:** Automotive-grade slip ring with over 5 million revolutions lifespan, ensuring high stability and durability.
- **Aviation-grade Aluminum Construction:** Entire housing is constructed from durable aviation-grade aluminum alloy with automotive-grade painting and laser etching.
- **Intelligent Temperature Control System:** Continuously monitors motor and electronic component temperature for stable performance.
- **NexGen 3.0 FFB Algorithm:** Enhances realism by eliminating swaying during straight-line driving and refining vehicle inertia.
- **Compact Design:** Integrated motor design with a standard 4-hole bottom mount pattern, compatible with various rigs and desk clamps.
- **Cloud-based Mobile App Control:** Allows for convenient adjustment and management of settings.
- **MOZA Pit House Control Software:** Dedicated PC software for comprehensive configuration and tuning.

Figure 2.1: Visual representation of the MOZA R12's key features, including 12Nm DD Power, Direct Drive Servo Motor, and Ultra-low FFB Latency.

3. Setup Guide

3.1 Unboxing and Component Check

Carefully unpack all components from the box. Verify that all items listed in the packing list are present and undamaged. The typical package contents include:

- MOZA R12 Direct Drive Wheelbase
- Power Supply Unit
- USB Cable
- Mounting Screws and Tools (if included)

3.2 Physical Installation

The MOZA R12 wheelbase can be mounted to a sim racing rig, cockpit, or a desk using a compatible desk clamp (sold separately). Ensure the mounting surface is stable and secure enough to handle the forces generated by the wheelbase.

1. **Rig/Cockpit Mounting:** Align the 4-hole bottom mount pattern of the R12 wheelbase with the mounting plate on your rig. Secure the wheelbase using appropriate screws (M6 or M8, depending on your rig) and washers. Tighten securely but do not overtighten.
2. **Desk Clamp Mounting:** If using a desk clamp, attach the clamp to your desk and then secure the R12 wheelbase to the clamp according to the clamp's instructions. Ensure the clamp is firmly attached to prevent movement during use.

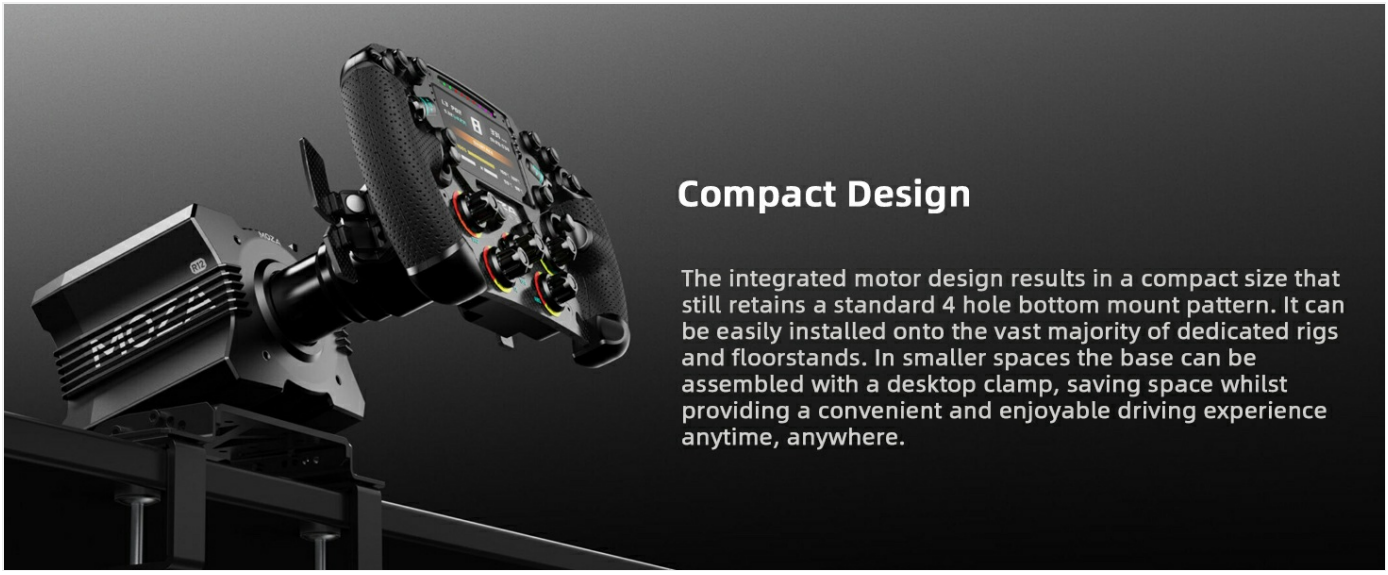

Figure 3.1: The MOZA R12 wheelbase shown mounted on a sim racing rig, demonstrating its compact design and compatibility with standard mounting patterns.

3.3 Connections

Connect the wheelbase to your PC and power source as follows:

- **Power Connection:** Connect the power supply unit to the "INPUT" port on the rear of the R12 wheelbase. Plug the power supply into a suitable wall outlet.
- **USB Connection:** Connect one end of the provided USB cable to the USB port on the rear of the R12 wheelbase and the other end to an available USB port on your PC.
- **Peripheral Connections:** If you have MOZA pedals, shifters, or other peripherals, connect them to the appropriate ports

(e.g., "PEDAL", "SHIFTER") on the rear of the wheelbase. Refer to the peripheral's manual for specific connection details.

Figure 3.2: Rear view of the MOZA R12 wheelbase, highlighting the various input and peripheral connection ports.

3.4 Software Installation

To fully utilize your MOZA R12 wheelbase, you need to install the MOZA Pit House software and the latest drivers.

1. **Download MOZA Pit House:** Visit the official MOZA Racing website (mozaracing.com/downloads) and download the latest version of the MOZA Pit House software.
2. **Install Software:** Run the downloaded installer and follow the on-screen instructions to complete the installation.
3. **Driver Installation:** MOZA Pit House will automatically detect and prompt you to install any necessary drivers for your R12 wheelbase. Follow the prompts to ensure all drivers are up to date.
4. **Firmware Update:** After installation, check for any available firmware updates for your R12 wheelbase within the MOZA Pit House software. It is recommended to keep your firmware updated for optimal performance and compatibility.

4. Operating Instructions

4.1 Powering On and Initializing

Once all connections are made and software is installed:

1. Ensure the wheelbase is securely mounted.
2. Turn on the power switch on the rear of the R12 wheelbase. The wheelbase will perform a brief calibration sequence.

3. Launch the MOZA Pit House software on your PC. The software should detect your R12 wheelbase.

4.2 Using MOZA Pit House Software

MOZA Pit House is your central hub for configuring and fine-tuning your R12 wheelbase. It allows you to:

- Adjust Force Feedback (FFB) strength and various FFB effects.
- Set steering angle and linearity.
- Calibrate connected peripherals (pedals, shifters).
- Update firmware for the wheelbase and connected devices.
- Save and load custom profiles for different games or driving styles.
- Monitor device status and temperature.

Explore the various tabs and settings within the software to customize your racing experience. Detailed explanations for each setting can often be found within the software's interface or the MOZA online knowledge base.

4.3 In-Game Setup

After configuring your wheelbase in MOZA Pit House, you will need to set it up within your chosen racing simulator game. Most games will automatically detect the MOZA R12 as a controller. You may need to:

- Select the MOZA R12 as your primary steering device.
- Map steering, throttle, brake, and clutch inputs.
- Adjust in-game Force Feedback settings. It is often recommended to start with lower FFB settings in-game and gradually increase them to avoid clipping or excessive forces.

Figure 4.1: A typical sim racing setup featuring the MOZA R12 wheelbase, demonstrating its integration into a complete racing simulation environment.

5. Maintenance

Proper maintenance ensures the longevity and optimal performance of your MOZA R12 wheelbase.

- **Cleaning:** Regularly wipe down the exterior of the wheelbase with a soft, dry cloth. Avoid using harsh chemicals or abrasive

materials that could damage the finish. Ensure no dust or debris accumulates in the ventilation openings.

- **Software and Firmware Updates:** Periodically check the MOZA Pit House software for new software versions and firmware updates. These updates often include performance improvements, bug fixes, and new features.
- **Cable Management:** Ensure all cables are neatly routed and not under tension or pinched, which can lead to damage over time.
- **Storage:** When not in use for extended periods, store the wheelbase in a clean, dry environment, away from direct sunlight and extreme temperatures.

6. Troubleshooting

This section addresses common issues you might encounter with your MOZA R12 wheelbase.

6.1 No Power / Not Turning On

- Ensure the power cable is securely connected to both the wheelbase and the wall outlet.
- Verify the power switch on the rear of the wheelbase is in the "ON" position.
- Check if the wall outlet is functioning correctly by plugging in another device.
- Inspect the power supply unit for any visible damage.

6.2 Wheelbase Not Detected by PC / MOZA Pit House

- Ensure the USB cable is securely connected to both the wheelbase and your PC.
- Try connecting the USB cable to a different USB port on your PC (preferably a USB 3.0 port).
- Restart your PC and the wheelbase.
- Reinstall the MOZA Pit House software and drivers.
- Check Device Manager in Windows to see if the wheelbase is recognized (even with an error).

6.3 No Force Feedback or Weak FFB

- Verify that the wheelbase is powered on and connected to the PC.
- Check FFB settings in MOZA Pit House; ensure FFB strength is not set to zero or very low.
- Check in-game FFB settings; ensure FFB is enabled and strength is adequate.
- Ensure the game is properly configured to use the MOZA R12.
- Update wheelbase firmware and MOZA Pit House software to the latest versions.

6.4 Overheating

- Ensure the wheelbase has adequate ventilation and its cooling fins are not obstructed.
- Reduce the overall FFB strength in MOZA Pit House or in-game settings if overheating occurs frequently.
- Allow the wheelbase to cool down if it becomes excessively hot. The intelligent temperature control system should manage this, but prolonged high-intensity use in a poor environment can still lead to high temperatures.

7. Specifications

Feature	Detail
Model Number	AZRS048
Peak Torque	12 Nm

Feature	Detail
Platform Compatibility	PC (Windows)
Motor Type	Direct Drive Servo Motor
FFB Latency	Ultra-low (280MHz processor)
Construction Material	Aviation-grade Aluminum
Connectivity	USB, Dedicated Peripheral Ports
Dimensions (Approx.)	11.7 x 11 x 7.5 inches (Package)
Weight (Approx.)	14.82 pounds (Item)
Manufacturer	Gudsen

8. Warranty and Support

MOZA products are designed for durability and performance. For specific warranty terms and conditions, please refer to the warranty information provided with your product packaging or visit the official MOZA Racing website.
For technical support, troubleshooting assistance beyond this manual, or warranty claims, please contact MOZA Racing customer support through their official website:

MOZA Racing Official Website: mozaracing.com/support

MOZA Store on Amazon: Visit the MOZA Store

Please have your product model number (AZRS048) and purchase information ready when contacting support.

Related Documents - AZRS048

	MOZA R12 Direct Drive Wheel Base User Manual | Sim Racing Performance Comprehensive user manual for the MOZA R12 Direct Drive Wheel Base, covering product introduction, installation, specifications, and software features for sim racing enthusiasts.

	[MOZA R12 Direct Drive Wheel Base User Manual - Features, Installation, and Specifications] Comprehensive user manual for the MOZA R12 Direct Drive Wheel Base. Learn about its features, connection ports, dimensions, installation guides, safety precautions, packing list, software (MOZA Pit House), technical specifications, and warranty information.
	[MOZA AB6 Flight Simulator User Manual - Setup, Features, and Precautions] Comprehensive user manual for the MOZA AB6 Flight Simulator, covering setup, installation, software, features of the AB6 Force Feedback Base and MHG Flightstick, and important precautions.
	[MOZA AB6 Flight Simulator User Manual and Guide] Comprehensive user manual for the MOZA AB6 Flight Simulator, detailing the setup, installation, software configuration, features, and precautions for the AB6 Force Feedback Base and MHG Flightstick.
	[MOZA FSR2 Formula Wheel User Manual - Features, Setup, and Specifications] Comprehensive user manual for the MOZA FSR2 Formula Wheel, detailing its features, quick release mechanism, software configuration with MOZA Pit House, packing list, technical specifications, and warranty information.
	[MOZA AY210 Force Feedback Yoke Base User Manual and Quick Guide] Comprehensive user manual and quick guide for the MOZA AY210 Force Feedback Yoke Base, detailing product features, technical specifications, connection instructions, software setup, base features, and important precautions for flight simulation enthusiasts.