



APEXMOTION

3 DoF Precision Driving Simulator

ApexMotion: 3 DoF Precision Driving Simulator



Enhanced Realism

ApexMotion replicates the dynamic forces experienced during actual driving, including acceleration, deceleration, and lateral movements. This heightened realism immerses trainees in lifelike driving scenarios, enabling them to develop crucial skills such as vehicle control, balance, and situational awareness. The realistic motion feedback enhances the training experience, making it more engaging and effective.

Improved Muscle Memory

The physical sensations provided by ApexMotion help trainees develop muscle memory, which is essential for mastering complex driving maneuvers. By experiencing realistic accelerations, decelerations, and turns, learners can internalize proper driving techniques and responses. This muscle memory translates to improved performance and reflexes when operating real vehicles on the road.





Stress Simulation

ApexMotion can simulate stressful driving situations, such as emergency braking or evasive maneuvers, with unparalleled realism. This capability allows trainees to experience and learn how to effectively manage stressful scenarios in a safe and controlled environment. By exposing learners to challenging situations, motion platform simulators help build confidence and resilience behind the wheel.

Increased Engagement

The dynamic motion feedback provided by ApexMotion enhances trainee engagement and immersion. The sensation of acceleration, deceleration, and vehicle movement stimulates multiple senses, creating a more captivating and memorable learning experience. This increased engagement fosters active participation and deeper learning retention, resulting in more proficient and confident drivers.

Customizable Motion Profiles

ApexMotion offers customizable motion profiles to simulate various driving conditions and vehicle characteristics accurately. Whether it's replicating the handling of a sports car on a race track or a standard car in everyday routes, ApexMotion can adapt to different training objectives and scenarios. Customizable motion profiles ensure that trainees receive tailored training experiences that meet their specific needs.

Instructor station

The instructor station of ApexMotion serves as the nerve center for monitoring, controlling, and managing the simulation experience. From this control hub, instructors can observe trainee drivers' actions in real-time, adjust simulation parameters to customize scenarios, and provide immediate feedback and guidance. It enables the creation and management of various driving scenarios, facilitates data logging and analysis for performance evaluation, and features communication interfaces for seamless interaction between the instructor and trainee. With safety features and the ability to intervene if necessary, the instructor station ensures a comprehensive and effective driver training experience within a simulated environment. Instructor station can be used in conjunction with other Realiscape's driving simulators like ApexHauler for a unified training environment.





ApexTrainer Dynamics: Skills mastering software

Realistic Simulation

ApexTrainer Dynamics provides highly realistic environments that accurately replicate the complexities of real-world driving. Advanced physics engine simulate vehicle dynamics, including acceleration, braking, and steering, with precision. Additionally, detailed road models, traffic AI, and weather effects contribute to an immersive and lifelike simulation experience, allowing users to develop practical driving skills in a safe and controlled setting.

Customizable Training Scenarios

ApexTrainer Dynamics allows for the creation of customizable training scenarios tailored to specific learning objectives. Instructors can design scenarios that target particular skills or challenges, such as highway driving, parking maneuvers, or hazard recognition. This flexibility enables trainees to focus on areas where they need improvement, ensuring a comprehensive and personalized training experience.

Safe Learning Environment

One of the primary advantages of ApexTrainer Dynamics is the ability to provide a safe learning environment for trainees. Simulation-based training eliminates the risks associated with practicing in real-world traffic, reducing the likelihood of accidents or injuries. Trainees can make mistakes, experiment with different strategies, and learn from their experiences without putting themselves or others in danger.

Objective Performance Evaluation

ApexTrainer Dynamics offers detailed performance metrics that allow instructors to assess trainee progress objectively. Metrics such as speed, acceleration, braking distance, and adherence to traffic laws provide valuable insights into a trainee's driving proficiency and areas for improvement. Objective feedback enhances the effectiveness of training programs by enabling targeted interventions and personalized instruction.

TECHNICAL SPECIFICATIONS

Cabin

CABIN:	Left Hand Drive
MATERIALS AND COMPONENTS:	Aluminum, Steel (Chassis), high quality plastic, OEM components [adjustable steering column with handles (indicator lights, cruise control, wipers)], adjustable seat (front-back / up-down) with high quality fabric, 3-point safety belt, handbrake, gear shift, dashboard buttons (lights, mirrors adjustment etc).
DIMENSIONS (APPRX.) (D X W X H MM):	1500 x 1100 x 1800
WEIGHT (apprx.):	300 kg
TRAINEE MAX WEIGHT:	140 kg
DISPLAY SCREENS:	3 x 27" orizontal, 1920 x 1080 each (full HD). 180° FOV (combined)
DASHBOARD:	19" screen or better, full HD. Displays speed, engine revs, indicator lights, fuel consumption, faults etc. Various layouts depending on car model. Emergency kill switch.
DRIVING LESSONS SCREEN:	19" screen or better, full HD with touch.
DRIVER FEEDBACK:	Vibrating steering wheel, force feedback pedals.
GEARBOX:	Manual (6 speed) and automatic
SOUND SYSTEM:	5.1 Dolby Digital Surround, communications headset.

Computer

PROCESSOR:	Intel Core i7 (14th gen) or equivalent
MEMORY:	32 GB DDR4
DISK:	1TB NVMe
GPU:	Nvidia GeForce RTX 4080 or equivalent

Motion Platform

AXIS	SPEED	ACCELERATION	ANGLE	
Up/down	400 mm/sec	6.86 m/sec ²	-50 mm	+50 mm
Roll	± 26.5° / sec	491°/sec ²	-3.6°	+ 3.6°
Pitch	± 26.5° / sec	491°/sec ²	-3.6°	+ 3.6°

Software (ApexTrainer Dynamics)

SIMULATION FIDELITY:	Dynamic. Comprehensive computational multiphysics algorithms for dynamic driving.
ENVIRONMENT:	Urban: (120 km city highway, 120 km city driving). Suburban/forest mixed: (50 km standard plain, 30 km tarmac mountain road, 20 km plain dirt road, 20 km mountain road). Maneuver area with loading docks. Variable weather, time of day (affecting streets, cars, buildings etc lights at dusk) and traffic conditions user-selectable. Weather affects vehicle dynamics.
LOCALIZATION:	Full International English and Greek localization (LHD) (environment, driving laws, road signs, vehicle types, license plates), instructions and user interface both for trainer and trainee.
SCENARIOS:	Standard scenarios, emergency driving (car selectable), new driver, defensive driving, dangerous conditions (slippery road, animal/pedestrian on the road, unpredictable vehicle behavior, limited space driving/maneuvering, load tilt, mechanical faults, flat tire etc). Applies on car, truck, small truck, firefighting, water tank carrier, coach, city bus, lorry with trailer/semi-trailer etc.
SPECIAL VEHICLES:	Firefighting incl. siren sound with varying road conditions (heavy/light traffic) and unforeseen incidents (traffic lights, pedestrians, obstacles etc). Urban, suburban, forest roads.
DRIVING AIDS:	Safety electronics (ABS, ESC, TCS, Lane Assist, etc). Mirror display on screens.
SOUNDS:	Fully simulated environmental conditions (ambient sounds, rain, other vehicles etc.) and vehicle sounds like engine, tyres, direction lights, horn, wipers, crash etc.
DRIVING LESSONS:	Trainee activated via touchscreen driving lessons like parking, reverse driving, towing etc. Every lesson is accompanied by instructions written and oral.

Instructor Workstation

SETUP:	Rack-mounted computer, rack, three 27-inch screens (full HD), communication headset, gigabit switch, desk and chair.
COMPUTER:	Intel Core i7 (14th gen) or equivalent, 16 GB DDR4, Nvidia GeForce RTX 4070 or equivalent, dual disks (500 GB NVMe SSD + 1TB NVMe SSD).
SOFTWARE (ApexControl):	Control up to four systems simultaneously like simulator setup (number of screens, connection subsystems) vehicle (type, cabin), scenario, road and weather conditions, obstacles etc. through easy-to-follow menus.
SOFTWARE (ApexConfig)	Vehicle type (car, truck, small truck, firefighting, water tank carrier, coach, city bus, lorry with trailer/semi-trailer etc), cabin type, dimensions, weight, center of gravity, gearbox type and layout, tyre condition, water tank configuration (tank size, percentage full, compartmentalisation, kind of liquids [max 2]), vehicle save ability.
SOFTWARE (ApexMaker):	Scenario builder for ApexTrainer software.
SOFTWARE (ApexLearn):	Trainee file, tracking, exercise parameters, progress and statistics. After action review with multi-view, exercise route, exercise time exercise outcome and statistics (fuel consumption, controllers usage, driving mistakes etc.) printout in PDF, trainee evaluation and scoring via ISO 39001:2012 compatible procedures.
LOCALIZATION:	Full International English and Greek localization (user interface on all applications, printouts, scoring etc.).

Options

CAMERA:	Instructor's camera for student observation.
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