SimPULSE

Made for real behaviour

SimPULSE is the newest simulator issued by the engineering team at AVSimulation.

The new modes of driving and the next generation of ADAS systems require the most efficient tools to shorten the time-to-market of today's innovations. At the core of the specifications of SimPULSE: the highest possible level of immersion. The driver experience is the key: AVSimulation used the know-how from the 20 M€+ class simulators (SimELITE) to design this new product.

When focusing on the driver and passenger's behaviour in the next generation of vehicles, the degree of immersion of the users is defining the accuracy and added value of the observations.

Unlike motorsport applications where the drivers can be trained to adapt to the simulators, multi-functional simulators need to provide homogeneous levels of all cues, from visual to vestibular.

AVSimulation is in a unique position in the market: the engineers in charge of the design and validation of the simulators share the same offices as the development team for the SCANeR software suite. By working hand in hand, they can elaborate optimal solutions at the service of the end users.

The integrated **Cockpit Exchange System (C.E.S.)** inherited from the SimELITE simulators is a game changer. The architecture and the interiors of the vehicles are evolving quickly, and AVSimulation wanted to make it possible to update the simulator without excessive costs. The C.E.S. also makes it possible to drive one cockpit when a second one is being prepared for the next experiment or is used as a static simulator.

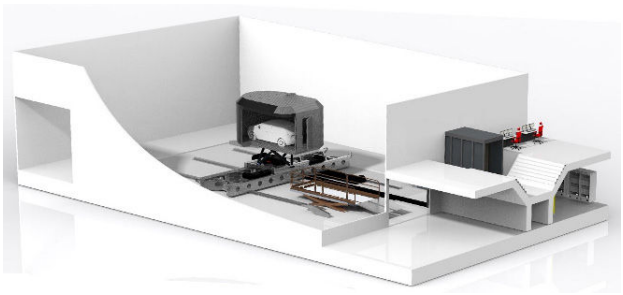
Ready for multi-simulation

SimPULSE can run in multi-simulation with other simulators (SimEASY, SimPRIME+, HIL…). It makes it easy to introduce real drivers into the simulated-traffic.

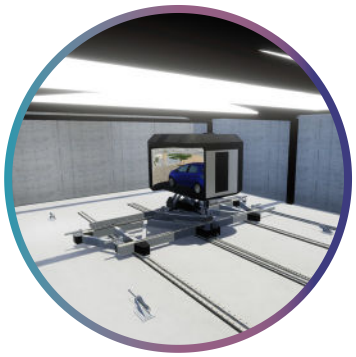
Versatility / affordable / so real !

SimPULSE offers the best performance / cost ratio on the market. Based on the computation of the cueing software for the optimal rendering in standard to intense driving situations, the motion system is based on a proven architecture, with even higher performances. The engineers were aiming at providing **the triple 5: 5m/s², 5m/s** and excursions of a minimum of **5 meters** in all directions.

The results of the AVSimulation's calculations bring an even more efficient system, paving the way for a wide range of driving conditions. Experienced users of simulators know that the most important is not the maximum values of the accelerations, but that the key is also the duration of the accelerations felt by the drivers. The homogeneity of the dynamics brings the drivers to realistic situations with **physical and psychological fidelity.**



Expanding an existing simulation centre with a versatile simulator of the latest generation?
Needing more realistic simulation and improved immersion?
Use the latest technology by AVS from the most performant simulators in the world.



Use cases

SimPULSE is aiming at covering a broad range of use cases. The very high level of realism in all aspects of the driving tasks ensures that today's and tomorrow's **studies will be efficient and productive.** [Discover our large format AVSimulation Use Cases Matrix here on our website.]

		Technical Design Engineers and researchers	Performance assessment Pro drivers	User experience Lambda drivers	Demonstration & training Open public
Human Behaviour	Driver strategies, awareness and distraction, physiology, psychology, clinical studies	*SimPULSE*			
HMI Design	Assessment of the quality of HMIs	*Highest focus on the driver and passenger*			
AD & ADAS	Evaluation and testing of ADAS when driving				
Driving cockpit	Perceived quality of the cockpit: distribution of components, reachability				
Vehicle Body	Interior visibility (driver and passengers), vehicle ingress & egress				
Infrastructure planning & safety		*SimPULSE*			
Vehicle dynamics	White body, drive train and braking, suspensions, steering, mass distribution, aerodynamics				
Ride and comfort	NVH				
Powertrain & efficiency	Hybrid / electrical / combustion engines strategies	*SimPULSE*			
Headlights	Standard lamps, AFS, pixel lighting				

Exploration of new interfaces for the drivers and passenger?
Testing tomorrow's autonomous models?
Designing the next generation of sensors and assistance systems?
Evaluating the comfort of the drivers, and the behaviour of the passengers in autonomous vehicles?
The SimPULSE simulators bring expert to lambda drivers to unparalleled virtual driving at this price range.

Main specifications

Cockpit: full car cockpit for higher realism, instrumented with touch screens and a full I/O kit to provide customizable HMIs. The end user will opt for the vehicle model selected and pre-equipped by AVSimulation or for any other custom model.

Exchangeable cockpit: dedicated gate in the dome, and optional elevator for eased cockpit swaps.

Full dome for realism and preserved experience. Optimized structure to save weight and offer high stiffness for dynamic manoeuvres. **Engineered and made in France.** A/C system connected to the cockpit.

Visual: 360° display, 5 LED projectors of the latest generation, 120 Hz display, available 3D rendering, with high performances and low maintenance. Full field of view covered at all positions of the motion system. Automatic calibration.

Motion: triple 5 … and more !

		Excursion	Max speed	Max accel.
XY Platform	X	10 m	5 m/s	5 m/s²
	Y	7 m	5 m/s	5 m/s²
6DoF System	Surge	1 m	1 m/s	6 m/s²
	Sway	1 m	1 m/s	6 m/s²
	Heave	1,52 m	0,6 m/s	9 m/s²
	Roll	48 deg	34 deg/s	200 deg/s²
	Pitch	50 deg	37 deg/s	200 deg/s²
	Yaw	54 deg	41 deg/s	400 deg/s²

Full PC system and SCANeR studio licence.

High-definition sound system and intercom.

Warranty & maintenance: access all the services offered by AVSimulation

Contact us to get a study of the implementation of the SimPULSE simulator in your premises.
Let's evaluate together your advances in time-to-market and associated cost savings.

AVSIMULATION