

The future in flight simulation
has arrived..



AVION flight simulation

The AVION simulator concept

The AVION simulator is a totally new design.

AVION eliminates many drawbacks in classical simulator concepts that were designed in the past but are still manufactured today.

The AVION simulator uses high-tech technology such as Ethernet, electronically controlled motion functions, fully integrated systems, etc.

The entire "simulator data backbone" runs on high-speed Ethernet, eliminating the need for expensive ARINC and other proprietary interfacing protocols. The result is an extremely reliable and cost-effective real-time environment which is superior to any system available today. Not only maintenance costs are greatly reduced, but also total cost of ownership have dropped considerably.

As a part of the fully integrated design of this superb simulator, all essential computer servers are on-board, an absolutely "industry first" and ranks high regarding innovative power.

Using the latest solid state technologies and top of the line server hardware lowers both interfacing costs and facility requirements.

Despite the fact that all hardware is on-board, this simulator is the lightest and most energy-efficient device, compared with any other system.

Furthermore, a strategic choice in this fully integrated design has been to include the entire climate control system on-board. This choice eliminates most facility requirements and complex, special ducting which usually lowers the efficiency of the climate control system. Energy savings are therefore just one of the benefits of this system that regulates temperature and humidity control next to smoke extraction. These features make it unique and makes it with all its other new system-thinking approach a top of the line innovative simulator concept.

The staircase or docking bridge is seamlessly integrated into the exterior door panel of the simulator. A unique feature again that makes this simulator the first of its kind and can be used autonomously without any need for structures or external staircases to enter the simulator.

It fits perfectly within the overall design of the total simulator concept driven by the philosophy of a fully integrated system.. The unique manual backup feature allows for easy disembarkation in case of an emergency, eliminating the need for risky rope ladders.

The conclusion can only be that Avion simulators are the lightest and most energy-efficient full-flight simulators in the world. Through "out of the box" thinking and actually putting everything inside the box, it creates the lowest facility requirements of any full-flight simulator. Reduced energy usage, less downtime, lower maintenance and ownership costs are the result of a well-crafted design. A design thought out and thought through....by pilots themselves.

And yes, AVION simulators will deliver "the Future" ...today...

AVION flight simulators give airlines and training centres a real cost effective tool to train pilots up to the highest industry standards.



Control loading system

The control loading system (CLS) is manufactured by E2M Technologies BV. The CLS consists of latest-generation electromechanical control force actuators, which allow for extremely accurate and highly efficient operation and precise simulation of actual aircraft control forces.



On-board computers

Up till now it was common practice to place most of the computers outside the simulator, requiring significant cabling between the sim and the computer cabinet. The latest solid-state drive technology enables us to place all computers inside the simulator base unit, without having the burden of extensive cabling and a remote cabinet. Only Solid State hard Drives (SSD) are used in the simulator. The computers are industrial 19inch computers mounted in a rack in the base frame.

Accessible projectors

Current simulators have a so-called "projection deck". It is an area on top of the instructor station that allows engineers to access the projectors. The projection deck is a cost driver, as it needs structure, stairs to the projection deck, railings, detection electronics, a gate, etc.

In our new design, the projectors are accessible from within the aft cabin, eliminating the need for a projection deck.

In AVION simulators, access and maintenance of the vision system will be an easy job eliminating extensive periods of down time due to maintenance.

Fast installation

The advantages of an integrated staircase, integrated air conditioning and integrated HP computers system, make that the AVION simulator has become a plug/play simulator.

It allows for fast, flexible deployment and results in very low cost of ownership.

Image generation and vision system

The visual image is generated by the latest-generation 3D image generator and features the latest technologies in lighting, shading, transparency and modeling to provide an astonishing, real-life outside image. Complete control in simulating weather, time of day and other environmental elements are achieved through the IOS (Instructor Operating Station).



Fully integrated air conditioning system

The air-conditioning system is fully integrated within the floor structure of the simulator. So no external hoses and/or connections are required to install or operate the AVION simulator. This minimizes the need for on-ground equipment. There will be no need for large hoses to connect the air conditioning system with external equipment.

Smoke generation

A smoke generator is incorporated in the simulator for realistic air conditioning malfunctioning- or electrical smoke related emergency exercises.

Integrated staircase in simulator cabin

Simulator buildings are complex structures, usually requiring a minimum of two floor levels and also a mezzanine to support bridges that connect the simulator to the building.

In this unique design the simulator itself is equipped with an integrated retractable staircase.

The integrated staircase/door allows easy and simple simulator access.

There will be no need to build a mezzanine floor and/or building facilities with 2 floors.

So this design considerably reduces costs on infrastructure.



Simulator panel interface

The cockpit panels in today's aircraft are designed with an internal logic to operate 28 V dc for power and use the Arinc 429 to transmit/receive data.

Avion has designed a more practical and simple interface. Avion Simulation sends and receives data over the Ethernet, using UDP, which can be processed by all of today's computer generations. Each panel in the simulator has its own interface micro SD card and processor.

All panels use an identical interface card that holds the firmware to load. And again, unique. This reduces the number of required spare components, and changes to the firmware are easily made using a laptop. It allows for quick replacement of the interface card, replacement doesn't require a restart of the simulator as the I/P address and port nr are stored on the SD card and will be read automatically when powering up.

Motion system

The simulator employs a six-degrees of freedom, fully electric motion system, supplied by E2M.

The motion system allows to move in three linear directions (surge, sway, heave) and in three angular directions (roll, pitch and yaw).

Being of the latest generation, the E2M motion system provided unsurpassed quality in terms of smoothness and noise levels.

Combined with the most advanced motion cuing software, the level of realism and immersion is greatly enhanced.





Postal address:

P.O. Box 1354 • 2130 EL Hoofddorp
The Netherlands

Factory address:

Pesetaweg 63 • 2153 PJ Nieuw-Vennep
The Netherlands

T +31 252 258 258
GSM: +31 624 354 354
info@avionsim.com

avionsim.com