



## COALESCENCE™ MIXED REALITY SYSTEM

# MERGING REAL-WORLD AND SYNTHETIC ENVIRONMENTS

Imagine: a flexible, cost-effective system capable of fully immersing you into virtual-reality training scenarios across air, land and sea domains. One that simultaneously enables you to interact with real objects and people. All in a system that requires a small footprint.

Now, the imaginary has become reality. Introducing the Collins Coalescence™ mixed reality system.

Train with Coalescence and the system surrounds you with 3D photorealism. Your body quickly begins to react as if those surroundings were real. Other live participants can train with you for multi-crew interaction.

Coalescence enables you to train on a variety of tasks, including gunnery, hoist operations, vehicle maintenance, mobile flight trainers, navy surveillance and more. The system lets you see and interact with real equipment and tools in the synthetic

environment using your hands. There's no need for special tracking gloves or cumbersome virtual-reality clothing.

Through your virtual-reality headset, you can see real-world elements in front of you – including your hands – in an immersion of the virtual environment. Because you're working with actual equipment and tools, your mixed-reality training provides you with the haptic feedback that is crucial to a positive training experience.

Give your trainees a greater sense of realism than simulated environments or virtual-reality applications alone can provide. Enjoy training availability that goes beyond the fixed training center. Because Coalescence is highly portable, it can easily set up on ship, at a forward deployed base or virtually anywhere else you need training capability.

Take a leap forward in effective, flexible, portable and cost-efficient training with Coalescence.

## KEY FEATURES AND BENEFITS

- The first training system that enables trainees to interact with real items in their environment while immersed in a virtual-reality environment
- High immersion and engagement for better learning transfer
- The first solution to provide training-critical haptic feedback through interaction with real equipment
- Enables real-time tracking and evaluation of trainees. Instructors can quickly insert themselves into the training to provide feedback.
- Flexible, adaptable and portable
- Train as "near to real" as possible with a small-footprint system at a lower price than traditional options

## KEY FEATURES AND BENEFITS (CONTINUED)

- Can interoperate with CORE™ simulation architecture for cost-effective re-use of developed simulation elements. This adds to Collins Aerospace LVC-enabling capabilities.
- Uses commercial off-the-shelf (COTS) elements for high technology advancement and lower costs
- 3D audio spatialization using head-related transfer functions to provide accurate spatial situational awareness

## TRAIN AT A FRACTION OF THE COST AND SPACE REQUIREMENTS

The high realism that Coalescence provides trainees is delivered in a small form factor. This enables the system to also deliver significant cost savings when compared with training in a fully live environment.

Consider an example. Typically, air crews training on tasks such as crew coordination, aerial gunnery and load training require a high-fidelity training environment. With a traditional, projection-based training system, this training environment might require a trailer, mockup of a helicopter and a setup for out-the-window views.

Coalescence achieves the same training effectiveness with just a commercial helmet-mounted display (HMD) and a few other integrated system elements with significantly smaller form factors.

## A SYSTEM THAT FLEXES WITH YOUR NEEDS

The system's modular design enables the use of different HMDs and synthetic environments. Elements can easily be changed based on user requirements, or on the availability of newer technologies, without causing significant integration issues.

The system is built to stay at the forefront of capability. Its use of COTS technology, such as the virtual-reality headset, helps keep Coalescence advanced while being cost effective.

## THE EXPERIENCE THAT MAKES COALESCENCE A REALITY

Integrating the components of a mixed-reality system for military and commercial training environments is no easy task. To do it seamlessly requires experience in an array of areas.

Collins Aerospace has more than 50 years of experience in simulation systems and near-eye products and technologies. We also bring decades of expertise in engineering, manufacturing, implementing and supporting training technologies for military and commercial applications worldwide.

That experience includes developing elite training systems. For example, in the Joint Strike Fighter program, pilots train with our HMD system, the most advanced system of its kind. Their flight training also uses our image-generation system, which is designed to meet the high demands of the fast-jet environment.

We continually look for ways to help our customers achieve their training objectives and meet their other most important requirements. Let us show you a more cost-effective, readily available way to train with Coalescence.



Specifications subject to change without notice.



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