Honeywell’s UniSim® 3D Connect is part of the comprehensive UniSim Competency Suite, which helps better train today’s industrial workforce. This solution can be used to extend simulator training to field operators for credible, realistic and immersive training experiences.

The Challenge: Improving Field Operator Skills

Training is no less important for field operators than it is for Distributed Control System (DCS) console operators. The fast pace of today’s industrial plant operations makes it difficult to arrive at well-informed decisions impacting reliability, efficiency and safety.

If incidents remain unchecked, damage to plant equipment, people and the environment can quickly escalate.

The field operator is an integral part of the operations team, extending the console operator’s reach and view. As such, their training is crucial to ensuring secure and efficient plant processes.

Field operators require comprehensive instruction prior to initial plant startup, as well as periodic refresher training to reassess their performance and bolster operational expertise. This training is often conducted in the field with both trainee and trainer exposed to practical limitations and risks.

The challenges encountered in delivery of timely and credible field operator training include:

- **New Construction**: Process facilities are not available for a worthwhile training experience.
- **Hazardous Environments**: Potential for exposure to hazards must be minimized.
- **Remote Locations**: Duration and number of employees in remote locations must be reduced, along with associated high costs.
- **Isolation**: Field operator training is often detached and executed without participation by the console operator.
- **Informality**: Field operator training objectives can be difficult to quantify and standardize, often resulting in informal training and evaluation methods.

The Opportunity: Connecting Simulation to a Realistic Virtual Environment

The traditional approach to integrating field operator actions within the context of a training exercise has been for either the instructor to take the role of the field operator and execute actions using the instructor graphics or, alternatively, a field operator console is launched on a separate console and an operator executes actions using dedicated graphics. This approach duplicated and represented the necessary field operator activities for the benefit of the console operator training objectives, but it did little to develop and create credible experiences for the field operator.

Figure 1: Training of field operators is a key priority for process plants.
Virtual 3D environments continue to evolve through the introduction of new software and hardware technologies. Virtual environments can provide a realistic, credible and fully immersive field operator experience. In particular, they can solve training challenges due to remote locations, new construction and hazardous environments.

Connecting the operator training simulator to virtual representations of the real world creates opportunities to utilize simulator exercises, as well as provide evaluation capabilities to train both console and field operators. Individuals and teams can now experience the plant, and the genesis and progression of training activities – not to mention simulated incidents – with astonishing realism, leading to better-informed decision-making.

The Solution: UniSim 3D Connect

Honeywell’s UniSim 3D Connect can be used to extend simulator training to field operators for credible, realistic and immersive training experiences.

UniSim 3D Connect is part of Honeywell’s comprehensive UniSim Competency Suite, which includes robust solutions to better train the industrial workforce for safe, incident free and efficient startups and operations. In addition to UniSim 3D Connect, the suite includes: UniSim Operations (versatile operator training simulator), UniSim Curriculum (customizable competency model), UniSim Tutor (powerful knowledge capture and propagation tool), and UniSim Field View (interactive, navigable and panoramic view of plant assets).

UniSim 3D Connect is designed to link third party, 3D-immersive modeling environments with the UniSim Operations process training simulator. This connectivity provides the field operator with a safe training environment for field orientation and procedural operations by monitoring instruments/gauges and operating simulated pumps, valves and switches.

Figure 2. Connecting the operator simulator to virtual representations of the real world creates robust training opportunities.

The key features of the integrated UniSim 3D Connect training simulator solution depend on the capabilities of the immersive technology. Solutions that have been demonstrated or delivered include:

- Familiarization with layout, including location of main pieces of equipment, identification of emergency equipment, etc.
- Line tracing and location of instrumentation, control and relief valves, start-and-stop motor equipment, etc.
- Start-up, shutdown, malfunctions and normal operations
- Troubleshooting
- Rounds and sampling procedures
- Lock-out and tag-out, and equipment isolation

Typical Applications

Field operator training is important across a broad range of industries. Honeywell UniSim 3D Connect is supplied for an increasingly diverse range of process plant applications. These include: Refining, Petrochemicals, Chemicals, Oil & Gas, Pulp & Paper, Plastics, Power, and Mining/Minerals/Metallurgy.

UniSim 3D Connect’s greatest value is minimizing the time operators spend in the field. Specific examples are found in remote locations (e.g., offshore platforms), in harsh climates (e.g., hot or cold conditions) and in hazardous process environments (e.g., H2S in sour gas areas).

Benefits to Customers

UniSim 3D Connect is an effective training solution for field orientation, procedural awareness and readiness under normal and abnormal situations. It opens the door to unique benefits compared to traditional field training methods by preparing field and DCS panel operators to work as a team.

- Accelerates knowledge transfer to field operators
- Improves plant familiarization through a realistic interface
- Increases operator knowledge of plant topology
- Provides a safe environment to learn from mistakes

UniSim 3D Connect provides the opportunity to realize sustained and measurable differences in the performance and coordination of operations teams. Improving plant reliability through informed decision-making is critical to this success.

- Deliver earlier operating profits
- Protect profits through incident avoidance
- Safeguard plant assets and the environment
In short, UniSim 3D Connect yields substantial financial returns becoming an indispensable part of a company’s operator training program.

**Hardware and Software Requirements**

UniSim 3D Connect is supplied for use on physical or virtual workstations running under Windows® workstation and server operating systems.

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Release R440</th>
<th>Release R441</th>
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<tbody>
<tr>
<td>Windows 7</td>
<td>32 and 64 bit</td>
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<td>Windows Server 2012</td>
<td>Standard</td>
<td>Standard R2 Standard</td>
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For most applications, a network of workstations will be supplied to host the instructor station, engineering station and process/control simulators. Linkages to DCS systems are provided using appropriate hardware and software.

**Why Honeywell?**

Honeywell provides a comprehensive range of services for the supply of UniSim simulators including: project management, cost control, planning, purchasing of associated computer platforms and DCS consoles, model-building, acceptance testing, training courses, documentation and operational support. Staffed by specialists in process engineering, control systems integration and project management, Honeywell teams have expertise in all key areas, with over 100 professionals locally in Europe, North America and Asia. Our teams also have the advantage of leveraging specialized resources within Honeywell, adding flexibility and providing best-in-class service to our customers.

**Support Services**

UniSim 3D Connect comes with worldwide, premium support services through Honeywell’s Benefits Guardianship Program (BGP). BGP is designed to help our customers improve and extend the usage of their software and the benefits they deliver, ultimately maintaining and safeguarding their software investment.

**For More Information**

Learn more about how Honeywell’s UniSim 3D Connect can improve your operational performance and plant safety. Visit our website [http://www.honeywell.com/UltimateOperator](http://www.honeywell.com/UltimateOperator) or contact your Honeywell account manager.

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