Honeywell

BLENDING & MOVEMENT | MOVEMENT MONITOR
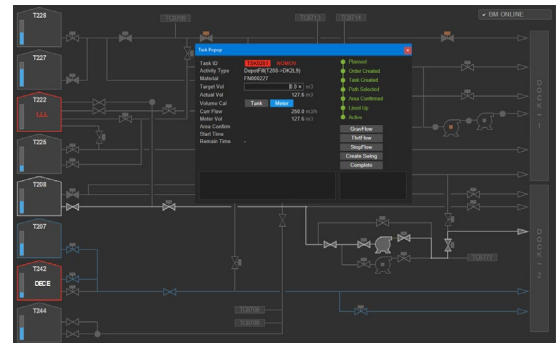
PRODUCT INFORMATION NOTE

> Honeywell's Movement Management - Movement Monitor (MM) enables operations personnel to accurately plan and monitor material movements within oil refineries, tank farms and terminals. Movement Monitor ensures that movement information is comprehensively and accurately recorded and monitored for safe and effective operation.

Key Capabilities

Movement Management - Movement Monitor is part of the Movement Suite within the Blending and Movement Solution and is built on the foundation of the Inventory Monitor application. Movement Monitor provides the following key capabilities in addition to those of Inventory Monitor that support movement monitoring for improved safety, reliability, sustainability and profitability of facilities:

- Movement Planning and Logging
- Movement Monitoring
- Tank Quality Integration
- Movement Alarming

Movement Monitor uses Tank Farm Graphic and pop-up displays for visual representation of equipment and movement information

Benefits

Reduced losses from tank farm incidents such as spills and product contamination because of increased monitoring capabilities and alarming	**Improved inventory reconciliation** by monitoring movements to ensure that all changes in inventory position are accounted for and logged	**Improved inventory reconciliation** by monitoring inventory levels and entry/exit flow rates to ensure that all changes in inventory position are accounted for and logged	**Elimination of data re-entry and errors** by collecting data from various systems, presenting to operator in a common user interface and storing as a common record for re-use	**Fewer material downgrades and shipping errors** by integrating with a lab system from which product properties and certification information can be obtained

These key capabilities are described below:

Movement Planning and Logging

Movement activities are defined in Movement Monitor as movement orders. The process of receiving orders from business and scheduling applications, setting up new orders, modifying existing orders, logging movement information and exposing that information to business and reconciliation applications is collectively referred to as movement planning and logging, or order management.

Movement orders may be remotely defined and entered through business and scheduling applications or may be entered directly into the Order Detail display shown below. Movement Monitor performs order management (movement planning and logging) through the following functions:

- Receives movement orders for scheduled operations from business and scheduling systems

- Provides the capability to define orders locally or edit received orders

- Passes requested order requirements to the system's movement monitoring functions or to a third-party Loading System for real time monitoring of movement operations

- Receives the completed result data, such as loaded product volume, from the real-time movement

- Provides a mechanism for plant personnel to correct and/or approve the completed result data

- Makes the completed and corrected result data available for shipping document printing and for transmission to business systems

- Makes significant task event data available to other Level 4 applications

- Boundary point envelope orders can be set up to string together a set of tasks that operate on the boundary point, so that inter-task swings can be created

Movement Monitor's Order Detail Display enables operators to view, edit or create movement orders

Movement Monitoring

The movement monitoring function helps an operator manage, prioritize and monitor material movement activities in refinery off-sites, tank farms or terminals. Material movements may be set up to have one or multiple material sources and one or multiple material destinations. Material movement sources and destinations may include tanks, docks, blend headers and on-site units. Conditions that may be monitored include:

- Movement target volume

- Time and date

- Tank volume, level, volume or limit

- Change in tank volume

- Tank stop gauge

- Pump or valve status

- Flow start or stop

- Another movement's state

Tank Quality Integration

Tank Quality Integration (TQI) is a feature that tracks product property changes as a result of movement operations for use as part of material certification.

Movement Alarming

The movement alarming functions monitor movements for several alarm and event conditions and can provide the operator notification of upcoming events or alarms in advance, as well as notification when the event or alarm occurs. Experion Station displays are used to view movement status and progress. Alarm types include:

- Unexpected and Fail to Stop

- 5 and 30 minutes to Start, and Start Condition Met

- 5 and 30 minutes to Stop, and Stop Condition Met

- 5 and 30 minutes to Swing, and Swing Condition Met

- Flow Started and Flow Stopped

- Wrong Direction, No Movement and Unexpected Movement

Movement Monitor's Order List provides overall monitoring of movements and an overview of the movement order details

Movement Monitor on Experion Platform

Movement Monitor is built on the Experion® PKS platform for distributed control of the field equipment used in blending and movement operations. Experion graphics are used as the basis for the Movement Monitor user interface, and Movement Monitor makes use of standard Honeywell Experion PKS functions such as messages, logging, as well as alarming and event journaling.

Movement Monitor on non-Experion Platforms

For non-Experion DCS, Movement Monitor integrates easily through OPC connectivity between Movement Monitor's Experion Application Server and the non-Experion DCS.
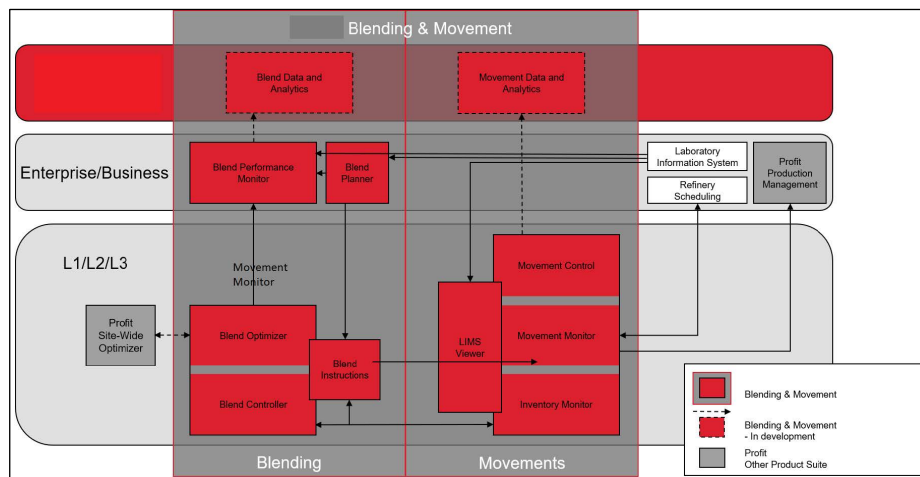
Integration with Honeywell Applications

Movement Monitor is a key component within Honeywell's Movement Suite, which is part of the Blending and Movement Solution. Other components of the Movement Suite are:

- **Inventory Monitor** – Tank inventory monitoring, alarming and logging.

- **Movement Management - Movement Control** – Movement set up and control including automated path selection, line-up and movement execution.

Together, these components form Honeywell's Movement Suite, a set of integrated tools for operations staff to accept, create and validate material movement plans, and control and track movements and inventories.

The relationships between Movement Monitor, the Blending and Movement Solution, and other Honeywell applications are shown below.

Movement Monitor is a key component of Honeywell's Movement Suite and integrates with other Honeywell applications

Inventory Monitor provides inventory data, alarms and tanks status to the **Movement Control** application and to other applications. Movement Control provides the automated line-up and execution of movements, accounting for material compatibility, equipment availability, etc.

When **Movement Monitor** is implemented, planned movements, or movement orders, may be transferred to **Movement Monitor** from **Blending Instructions** or planning and scheduling applications like Honeywell's **BLEND** application. Movement and inventory data may be transferred to oil accounting and balance applications such as Honeywell's **Production Accounting and Reconciliation** via XML files.

When **Movement Monitor** is used with Honeywell's **Blend Controller** (BC) application for control of blends, component volumes and flows may be uploaded from **BC** to **Movement Monitor** for monitoring blend movements.

When **Movement Monitor** is used with **Movement Control, Movement Control** handles the movement set up and control including automated path selection accounting for material compatibility, appropriate isolation, etc., as well as line-up and movement execution.

System Requirements and Architecture

As described earlier, Movement Monitor leverages the Experion® PKS platform. Contact Honeywell for the latest list of supported Experion PKS releases. The illustration below shows a sample Blending and Movement system architecture where Movement Monitor is installed in the context of a combined Experion PKS and business information system in a virtualized environment.
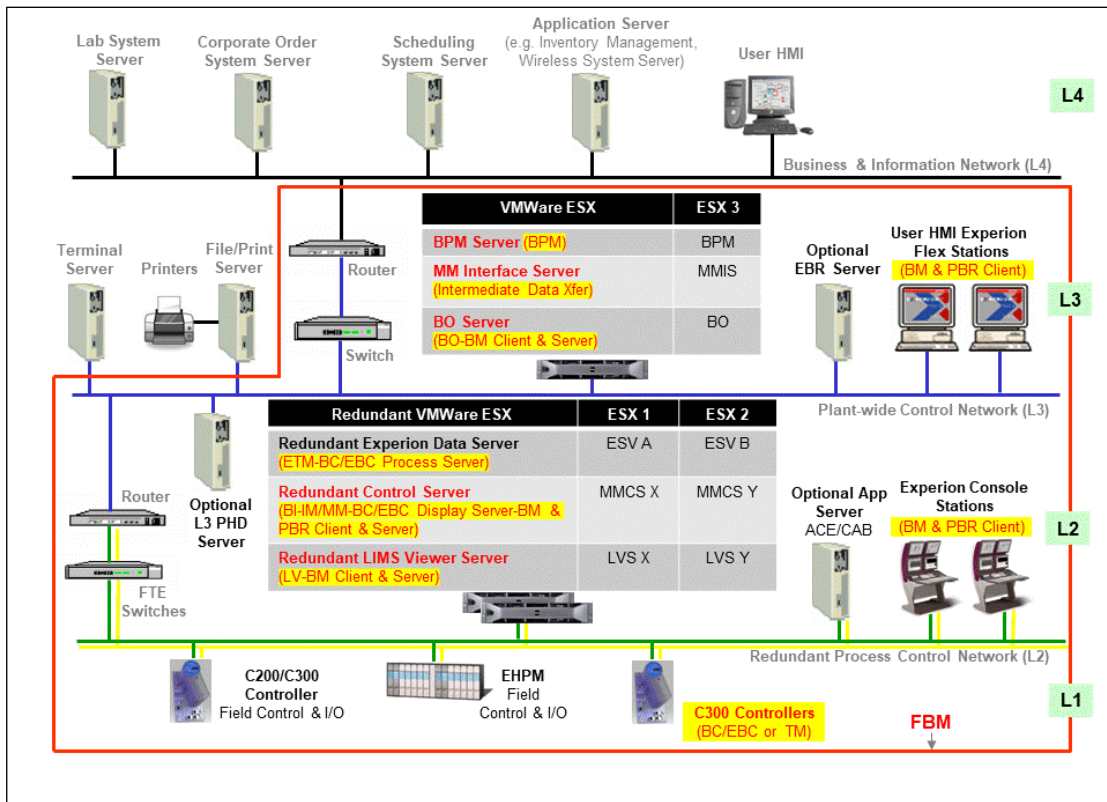
Sample Blending and Movement System Architecture

Movement Monitor is installed on the MM Control Server as illustrated. This server runs Windows Server 2019 (64-bit) and SQL Server 2019 (64-bit). The MM Control Server typically requires one Intel Xeon E-2124, 3.3GHz, 4 Core or faster processor with at least 16GB RAM and 2 x 1TB hard disk space. For specific Honeywell computer platforms and supported software that meet these requirements, please contact your Honeywell representative.

Support Services

This product comes with worldwide, premium support services through our Benefits Guardianship Program (BGP). BGP is designed to help our customers to improve and extend the usage of their software and the benefits they deliver, ultimately maintaining and safeguarding their advanced software.

Training Services

Training courses addressing Blend Controller implementation, use and maintenance are available through Honeywell's Automation College (www.automationcollege.com). On-site courses are also offered upon request.

For More Information

Learn more about Honeywell's Movement Control software can improve your material movement operations, visit www.honeywellprocess.com/software or contact your Honeywell Account Manager.

Honeywell Connected Enterprise

715 Peachtree Street NE
Atlanta, Georgia 3030
Honeywell

Honeywell