FIELDVUE® Instrumentation
AMS™ ValveLink® Software

- Communicate with both HART® and FOUNDATION™ fieldbus FIELDVUE® digital valve controllers
- Configure, calibrate, and diagnose FIELDVUE instruments from one location
- Use the Performance Tuner to easily optimize tuning
- Performance Diagnostics provide in-service diagnostics for monitoring the health of the valve assembly without disturbing the process
- Advanced Diagnostics provide validation of assembly rebuild and detailed insight into the physical condition of the valve/actuator assembly
- Setup and test FIELDVUE instruments for Safety Instrumented System (SIS) Solutions
- Scheduler allows you to specify a time and date to automatically run tasks on a regular basis
- Save time by preconfiguring calibration and diagnostics in the shop with Batch Runner
AMS™ ValveLink® Software Product Suite

AMS ValveLink Software is available in a variety of configurations to allow you to realize the full benefit of theFIELDVUE digital valve controllers.

AMS ValveLink Solo

ValveLink Solo permits users to perform configuration, calibration, and FIELDVUE diagnostics on HART and FOUNDATION Fieldbus FIELDVUE digital valve controllers.

Integrate AMS ValveLink Software into AMS Suite: Intelligent Device Manager

AMS ValveLink SNAP-ON™ provides integration with AMS Suite: Intelligent Device Manager to perform configuration, calibration, and FIELDVUE diagnostics. Integration with AMS Device Manager provides the ability to communicate with FIELDVUE digital valve controllers via DeltaV™, Ovation®, PROVOX®, HART multiplexers, and HART modems.

Integrate AMS ValveLink Software into DeltaV

AMS ValveLink SNAP-ON provides integration into DeltaV, using AMS Device Manager, to perform configuration, calibration, and FIELDVUE diagnostics on FOUNDATION fieldbus FIELDVUE digital digital valve controllers.

Integrate AMS ValveLink Software into the Yokogawa Plant Resource Manager (PRM™) and Centum™ Control System.

ValveLink PLUG-IN for PRM provides integration with the Yokogawa Plant Resource Manager (PRM). This integration provides PRM users with the ability to launch the ValveLink PLUG-IN for PRM directly from PRM and to communicate with FIELDVUE digital valve controllers through PRM and the Yokogawa Centum control system.

AMS ValveLink Software is a core component of the proven PlantWeb® digital plant architecture. AMS ValveLink Software powers PlantWeb through predictive and proactive control valve maintenance using intelligent digital valve controllers to improve availability and performance.

Note

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Communicate with both HART® and FOUNDATION™ fieldbus FIELDVUE® digital valve controllers

AMS ValveLink Software remotely communicates with HART FIELDVUE instruments (DVC2000 and DVC6000 Series, and the obsolete DVC5000 Series) over the existing 4-20 mA signal wiring using the HART communication standard. The same software also can remotely communicate with FOUNDATION fieldbus FIELDVUE instruments (DVC6000f Series and the obsolete DVC5000f Series) over the fieldbus H1 segment. Information for all series of instruments is presented in a consistent, easy-to-interpret interface that provides:

**Configure, calibrate, and diagnose FIELDVUE® instruments from one location**

- A device connection view of all connected instruments
- Monitoring of instrument operational parameters and alerts
- Review and comparison of diagnostic graphs
- Instrument setup and calibration
- Data import and export

Use the Performance Tuner to easily optimize tuning

The Performance Tuner lets you easily adjust a FIELDVUE digital valve controller for optimum performance. When mounting a FIELDVUE digital valve controller, to either a Fisher® or a non-Fisher valve, the Performance Tuner can optimize valve performance for you.
Performance Diagnostics provide in-service diagnostics for monitoring the health of the valve assembly without disturbing the process

Performance Diagnostics (PD) are predictive in-service diagnostics for monitoring the health of the valve assembly and customized diagnostics for advanced troubleshooting. Performance Diagnostics continuously analyze the valve assembly and passively gather data without disturbing or interrupting the control valve while it is in the process.

PD may be used to help detect problems with air leakage, valve assembly friction and deadband, instrument air quality, loose connections, supply pressure restriction, and valve assembly calibration. When a problem is identified, the diagnostic provides a description and severity of the problem, a probable cause, and recommended action.

In-service diagnostics for troubleshooting allow custom diagnostics to be set up to collect data at a high-frequency collection rate and present the data in a graphical format.

NOTE: Performance Diagnostics are available for DVC5000, DVC6000, and DVC2000 digital valve controllers when using ValveLink Solo and AMS Device Manager, including the HART Multiplexer Interface. Performance Diagnostics are available for DVC6000 and DVC2000 digital valve controllers when using the AMS System Interface with Ovation, PROVOX, or DeltaV control systems.

Performance Diagnostics tests are available upon user request or a pre-selected daily, weekly, monthly, or yearly schedule without user intervention.
Performance Diagnostics provide on-line / in-service predictive diagnostics to identify faults and list possible causes and recommended corrective actions for each fault.

Performance Diagnostics enable the use of diagnostics while the valve is in-service and operating. Tests can be performed to identify problems with the entire control valve assembly, such as:

- Red/Yellow/Green condition indicator, including:
  - I/P and Relay Integrity
  - Supply Pressure
  - Relay Adjustment
  - Air Mass Flow
  - Travel deviation
  - 1-Button Sweep

- Friction and Deadband Trending

Performance Diagnostics are available upon user request or may be scheduled to automatically run on a daily, weekly, or monthly basis.

Performance Diagnostics provide on-line / in-service predictive diagnostics to identify faults and list possible causes and recommended corrective actions for each fault.
Advanced Diagnostics provide validation of assembly rebuild and detailed insight into the physical condition of the valve/actuator assembly.

FIELDVUE Advanced Diagnostics (AD) vary the digital valve controller set point and plot valve operation to provide insight into the dynamic performance of the valve/actuator assembly. Advanced Diagnostics include out-of-service diagnostics such as valve signature, dynamic error band, and step response that will assist in the identification of emerging valve problems quickly and accurately.

The Valve Signature Diagnostic is used to:
- Evaluate valve friction, deadband, and shutoff capability.
- Calculate actuator spring rate and bench set.
- Identify potential packing problems.
- Compare current condition to previous baseline condition.

The Dynamic Error Band diagnostic is used to analyze hysteresis, deadband, and dynamic error.

The Step Response diagnostic allows you to evaluate how well the valve tracks an input change. By minimizing dead time, deadband, and overshoot, process control is greatly enhanced. With the Step Response test you can:
- Validate tuning parameters.
- Obtain a numerical analysis for overshoot, hysteresis, dead time, t63, and t86.
- Define up to 30 steps.

A performance step test provides a predefined sequence of 25 steps. This test allows the user to quickly evaluate valve and actuator response to signal change and determine maximum deadband.
At the same time the instrument performs the partial stroke test, AMS ValveLink Software also gathers diagnostic data. Use this data to evaluate valve performance and determine if maintenance is required.

A Trigger event, based on one of eight process variables, documents a “Safety Demand” event when used in a safety instrumented system.
AMS™ ValveLink® Software

- Diagnostic information to allow predictive maintenance of the final control element. No need to unnecessarily shutdown the process to perform maintenance on the safety shutdown valve.

- The capability to monitor the health of a solenoid valve downstream of the digital valve controller. This can improve safety reliability and provide assurance that the solenoid valve is not stuck in the open position.

- Event Messenger capability to send notification via email, pager, or cell phone if a specific alert, or set of alerts, occurs on a predefined set of safety shutdown valves.

Scheduler allows you to specify a time and date to automatically run tasks on a regular basis

With Scheduler, you can schedule tasks, such as Performance Diagnostics and SIS Partial Stroke diagnostics to run on a recurring daily, weekly, monthly, or yearly schedule that you specify. A summary of the outcome of scheduled tasks is available from within Scheduler and for complete details you can view the resulting diagnostic graphs and analyses. If you are using the AMS ValveLink SNAP-ON, any resulting alerts will be visible from within the AMS Device Manager Audit Log and Alert Monitor, and the AMS Suite: Asset Portal.

Scheduler functionality is not available from ValveLink SNAP-ON for DeltaV Fieldbus, and it is only available on ValveLink Solo installations on which Batch Runner is licensed.
Use Batch Runner to automate diagnostic tests and other repetitive activities

With Batch Runner, you can setup AMS ValveLink Software to automatically run diagnostics tests, calibrate, or upload configuration data to multiple valves with a user specified routine. During a turnaround or production change, you can upload configurations, run the Performance Tuner to optimize tuning, or even reset the instrument clock without any interaction by personnel. Batch Runner reduces redundancy and increases consistency by allowing the user to setup a batch once, and repeatedly run that set of actions on different groups of valve assemblies.

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### Specifications

**Available Configurations**

See table 1

**Recommended Minimum Hardware Requirements**

- 800 MHz Pentium® processor
- 256 Megabytes RAM (random access memory)
- Hard disk:
  - No Trending—40 Megabytes of free space
  - Trending—100 Megabytes of free space
- Video: 1024x768, 256 color VGA
- CD-ROM drive—4X or higher
- Ports:
  - HART Modem—Standard RS232, requires a dedicated interrupt
  - Viator USB HART Modem
  - HART Multiplexer—Standard RS232
  - Modbus—Standard RS232
  - Fieldbus H1 (NI)—NI PCMCIA-FBUS Series 2
  - NI PCMCIA-FBUS/2 Series 2
  - NI PCI-FBUS/2
  - USB HardKey
  - Fieldbus 770 Modem

**Supported Operating Systems**

- ValveLink Solo

### AMS ValveLink SNAP-ON

**AMS ValveLink SNAP-ON**

- Operating Systems supported by AMS Suite: Intelligent Device Manager v6.0 and newer.

### ValveLink Plug-In for PRM


### Modbus Interface

**Modbus Protocol:**

- RTU or ASCII
- Function codes 1, 2, 3, 4, and 8 (subfunction 0)
- Slave address 1 to 255 (user selectable)

**Communication Rate:** 300 to 19.2 kbaud

**Data Types:**

- Function codes 1 & 2—Alert Status
- Function Codes 3 & 4—Analog Values
  - IEEE double precision floating point
  - Signed integer
  - Scaled integer

**Electrical Connection to Control System:**

- RS-232 or RS-485

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1. Specifications do not apply to ValveLink SNAP-ON application for AMS.
2. For extensive use of trending, 100 Megabytes of free space is recommended.
3. AMS ValveLink Software is no longer supported on Windows 95, Windows 98, and is not supported on Windows ME or Windows Vista.
## Table 1. AMS ValveLink Software Capability

<table>
<thead>
<tr>
<th>CAPABILITY</th>
<th>AMS ValveLink SNAP-ON</th>
<th>ValveLink PLUG-IN for PRM</th>
<th>ValveLink Solo</th>
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**PRODUCT TYPE**

- **AMS ValveLink SNAP-ON**
- **ValveLink PLUG-IN for PRM**
- **ValveLink Solo**

### CAPABILITY

<table>
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<tr>
<th>Feature</th>
<th>SNAP-ON</th>
<th>PLUG-IN</th>
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**Notes:**

- ● indicates capability available
- ○ indicates Advance Diagnostics can be reviewed but not run
- 1. AMS based capability. AMS ValveLink SNAP-ON does not control or limit this functionality.
- 2. Advanced Diagnostics can only be run when the instrument is out of service.
- 3. DVC6000 only.
- 4. HART only.
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