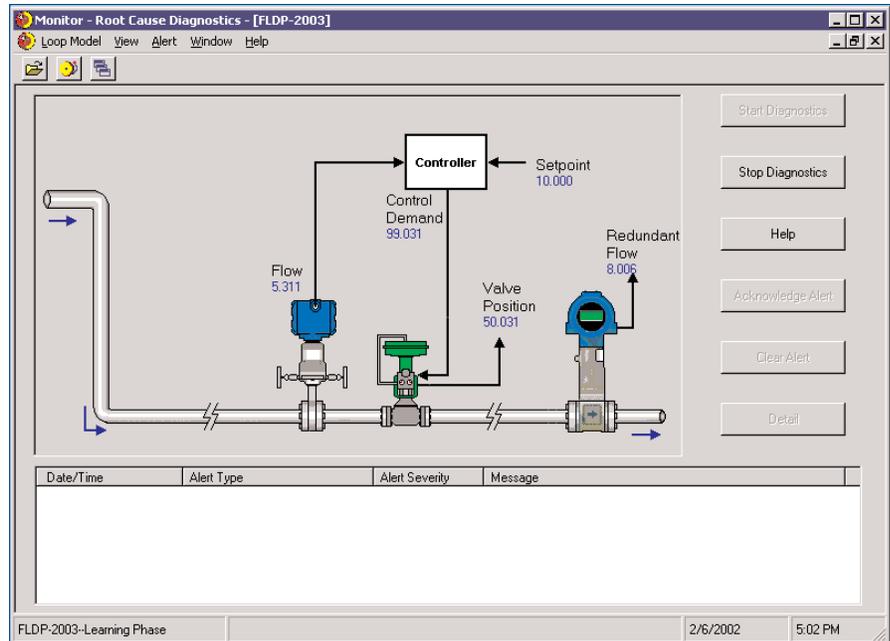# Root Cause Diagnostics™ SNAP-ON™ Application

- *Extends your awareness beyond device-specific alerts to include the entire loop. You will better understand how loops are performing and can quickly intervene.*

- *Enables you to monitor various device protocols on a loop; HART®, FOUNDATION™ fieldbus, and conventional 4-20 mA devices can be monitored to give you a comprehensive view of the loop.*

- *Monitors and checks the loop against a list of specific diagnostic conditions so you know how your process is performing.*
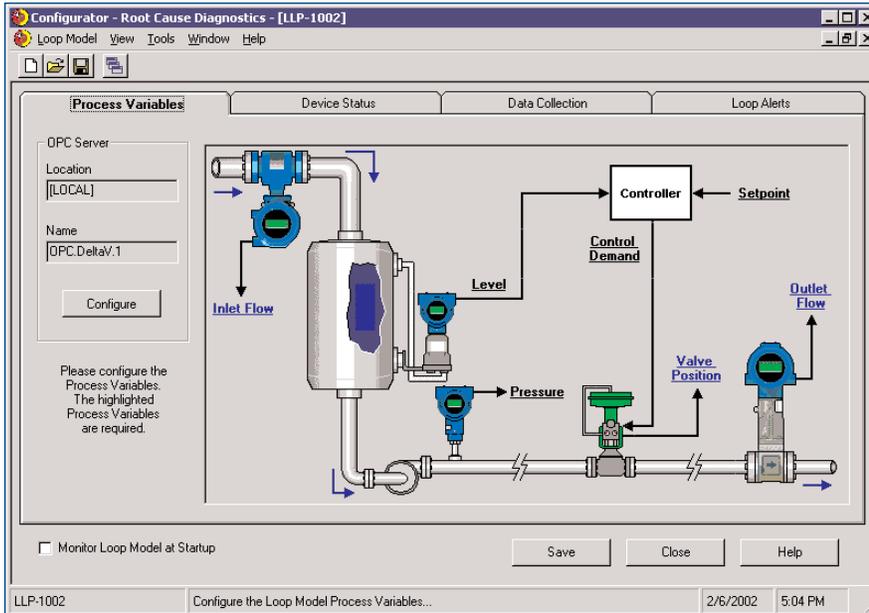


*This Root Cause Diagnostics screen depicts a model of a flow loop driven by differential pressure. The user has chosen to monitor all process variables.*

## Introduction

The Root Cause Diagnostics™ SNAP-ON™ application adds value to the AMS Suite: Intelligent Device Manager predictive maintenance software application by giving your more information on how your devices will be performing. By monitoring level and flow regulatory control loops and sending alerts to the AMS Device Manager application, you learn of problems that might otherwise go unnoticed.

You can monitor an entire loop and be alerted to non-device specific alerts, as well as device alerts for HART® devices. There is no need to create and implement your own diagnostic algorithms. There is no need to configure and graph multiple process variables on multiple screens in the control room. The Root Cause Diagnostics application gives you another way to observe devices to better understand how they are performing.

**EMERSON™**
Process Management

*This loop is controlled by a DeltaV control system. The loop consists of a*
*FOUNDATION™ fieldbus valve and HART® transmitters from two different manufacturers.*

■ Extends awareness beyond device-specific alerts to include the entire loop. You will better understand how the loops are performing and can quickly intervene.

The Root Cause Diagnostics SNAP-ON application takes predictive diagnostics to the next level by going beyond device-specific alerts. Now you can monitor and diagnose entire loops, using variables from multiple devices to identify problems not associated with any one particular device. Root Cause Diagnostics is even more powerful when used in conjunction with the AMS Device Manager Audit Trail. The Audit Trail captures all known events for analysis and quick action.

■ Enables you to monitor various device protocols on a loop. HART, FOUNDATION fieldbus, and conventional 4-20 mA devices can all be monitored to give you a comprehensive view of the devices on a loop.

No longer are you limited to only monitoring HART devices on a loop. With the Root Cause Diagnostics SNAP-ON application, you can monitor and diagnose loops consisting of HART, FOUNDATION fieldbus, and conventional 4-20mA devices. As devices are replaced in your facility, you can upgrade to newer technology and feel confident that this SNAP-ON application can handle your needs.
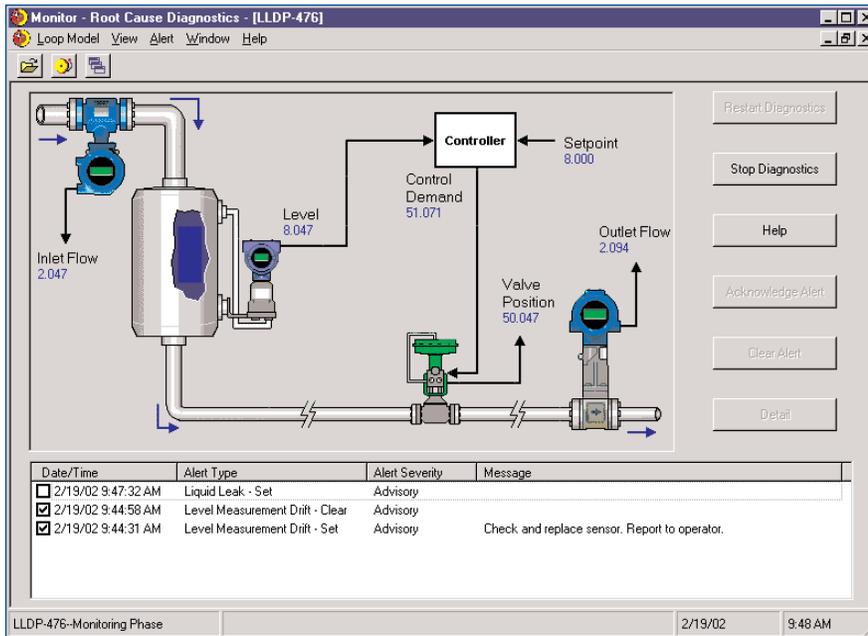
■ Monitors and checks the loop against a list of specific diagnostic conditions so you know how your process is performing.

At a minimum, you can monitor for the following diagnostic conditions:
– Control Wound Down
– Control Wound Up
– Level High
– Level Low
– Measurement Sensor Drift/ Valve Problem

By configuring all of the primary variables associated with a loop, you could also monitor for the following conditions:
– Measurement Sensor Drift
– Liquid Leak
– Liquid Leak/ Measurement Sensor Drift
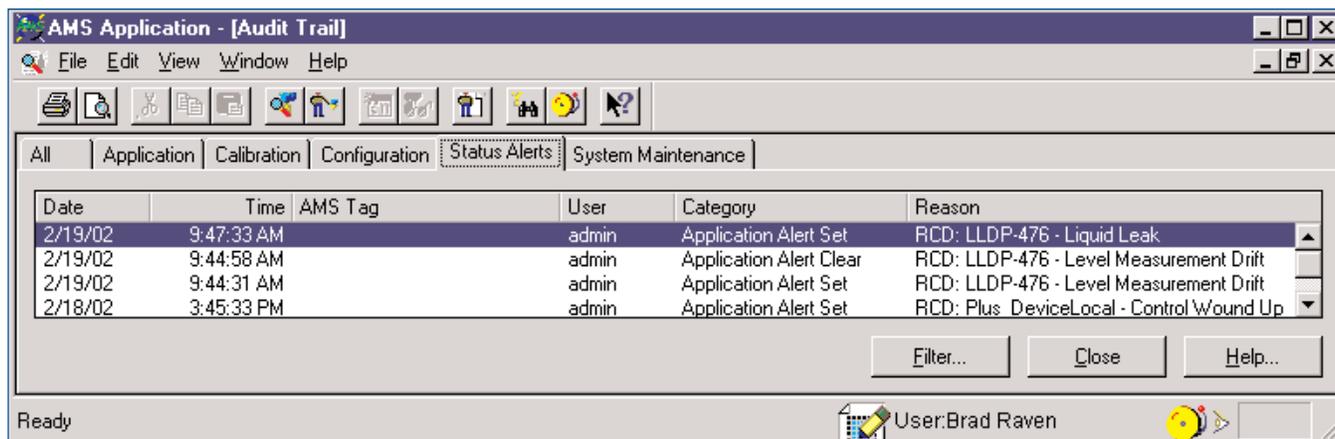– Valve Problem
– Head Loss

*The loop was experiencing problems with measurement drift. The alert window indicates that a user saw and cleared a Level Measurement Drift alert in the morning. New alerts indicate that further troubleshooting is required.*

## Easy Set Up

There are two easy steps to implementing the Root Cause Diagnostics SNAP-ON application. First, configure the loop model by choosing a template for either a level or flow regulatory control loop. The templates allow you to assign device variables to select devices, quickly accomplishing the configuration step.

Using the AMS Integration Tools associated with your Emerson DCS, browse for and then link to the primary variable of the appropriate process variable represented on the loop template.

Once you have configured a loop, you are ready to begin monitoring. As you begin monitoring, the application captures a baseline view of the system's behavior. When the diagnostic algorithms detect a problem, the correct alert is displayed within the main window. This alert can be a loop level alert or a HART device status alert. You can acknowledge each alert with a user name and comments, as well as view the alert details. In addition, alerts are written to the AMS Device Manager Audit Trail.

*You see all alerts from the Root Cause Diagnostics application in the Audit Trail so you have a complete record of both device and loop events documented in a single database.*

## Requirements

– AMS Device Manager

– Root Cause Diagnostics
  SNAP-ON application

– Emerson DCS and associated
  AMS Integration Tools that
  support browsing

– Level and/or flow regulatory
  control loops operating in a
  continuous, steady state condition

## Additional Requirements

– Audit Trail option to view all loop
  alerts and device events within
  a single window and database

## Ordering Information

| Model | Product Description |
|---|---|
| AW7074RCD0005 | Root Cause Diagnostics SNAP-ON Application for 5 loops |
| AW7074RCD0025 | Root Cause Diagnostics SNAP-ON Application for 25 loops |
| AW7074RCD0100 | Root Cause Diagnostics SNAP-ON Application for 100 loops |

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