

Maintenance 301

Problem detection

- Overview
- Is there a problem or not?
- Audit trail for device alerts
- User-initiated diagnostics

Overview

How does PlantWeb detect problems?

PlantWeb architecture integrates intelligent field devices, open communications protocols, and the AMS Suite of applications to reduce maintenance time and costs.

This series of four courses shows you how PlantWeb architecture streamlines maintenance for field instruments and mechanical equipment, from initial detection of a maintenance need to closing out the completed work order.

The first course focuses on detecting and diagnosing problems.

Hint: As you go through the topics in this course, watch for answers to these questions:

- *What does PlantWeb use to detect maintenance needs?*
- *What types of conditions can be detected?*
- *How are diagnostics initiated and their results logged?*

Is there a problem or not?

The first step in streamlining field device maintenance is to eliminate the need for most routine checks.

PlantWeb does this by combining device diagnostics and online alert monitoring to identify conditions that **do** need attention — eliminating wasted, "no problem found" trips into the field.

Diagnostics in Emerson intelligent field devices can detect a variety of device conditions that indicate potential problems with the instrument or its attached sensor, final control element, or related hardware. These conditions range from sensor fouling to drift to plugged impulse lines to improper grounding, as well as valve wear and actuator problems.

AMS Suite: Intelligent Device Manager software can monitor selected devices online and automatically alert the operator or maintenance shop when a potential problem arises.

AMS Suite: Machinery Health Manager software can monitor specific criteria for each piece of mechanical equipment. When a threshold is breached, you can initiate additional, more in-depth diagnostics to be run on the asset.

Audit trail for device alerts

Alerts from the AMS Device Manager are automatically logged into an Audit Trail that tracks devices both by physical device and by plant tag. This permanent record helps identify recurrent failures. Sometimes a device alert is enough to trigger the generation of a work order.

AMS Configurator - [Audit Trail]						
File Edit View Window Help						
All Application Calibration Configuration Change Status Alerts System Maintenance						
Date	Time	AMS Tag	User	Event Type	Reason	
8/16/01	4:06:25 PM	PT-855	Joe Smith	Calibration	Calibration	
8/16/01	3:22:44 PM		Joe Smith	Application	Successful login with permissio	
8/16/01	3:21:18 PM		Joe Smith	Application	User logged out: Joe Smith	
8/16/01	3:09:08 PM		Joe Smith	Application	Successful login with permissio	
8/16/01	3:08:37 PM		Joe Smith	Application	User logged out: Joe Smith	
8/16/01	3:06:48 PM		Joe Smith	Application	Successful login with permissio	
8/16/01	3:06:18 PM		Joe Smith	Application	User logged out: Joe Smith	
8/16/01	3:00:34 PM	TT-408	PS.amstst2	Status Alerts	Hot Backup Active	
8/16/01	3:00:34 PM	TT-408	PS.amstst2	Status Alerts	More status available	
8/16/01	2:58:59 PM	TT-408	Joe Smith	Configuration Change	Config Hot BU executed	
8/16/01	2:58:50 PM	TT-408	PS.amstst2	Status Alerts	Sensor 1 Failed	
8/16/01	2:58:40 PM	TT-408	Joe Smith	Status Alerts	Alert 'More status available ' cle	
8/16/01	2:58:40 PM	TT-408	Joe Smith	Status Alerts	Alert 'Sensor 1 Failed ' cleared	
8/16/01	2:58:40 PM	TT-408	Joe Smith	Status Alerts	Alert 'Hot Backup Active ' clea	
8/16/01	2:57:55 PM		Joe Smith	Application	Successful login with permissio	
8/16/01	2:57:50 PM	TT-408	PS.amstst2	Status Alerts	Sensor 1 Failed	
8/16/01	2:57:50 PM	TT-408	PS.amstst2	Status Alerts	Hot Backup Active	

Problems identified with mechanical equipment through the AMS Machinery Manager are documented in a case history file. The reliability engineer can document the specific problem, as well as attach any diagnostic analysis plots that may have been generated.

User-initiated diagnostics

While many diagnostics run continuously in the device, some device diagnostics must be initiated from a host system or PC. These diagnostics may require that the device be placed offline or even that the process be shut down.

Although they require more human intervention, these user-initiated diagnostics also reduce maintenance time by reducing trips to the field and automating the maintenance test process.