

Magmeter Diagnostics Reduce Maintenance Costs Associated with Corrosion of Ground Lead Connection

RESULTS

- Prevented unnecessary flowmeter replacement
- Decreased shutdowns and reduced maintenance costs
- Detected bad grounding associated with ground wire corrosion



APPLICATION

Corrosion within a Chlor-Alkali Plant

CUSTOMER

A major Chlor-Alkali plant

CHALLENGE

When installing a flowmeter, proper grounding ensures the magnetic field remains isolated from electrical noise caused by nearby electrical equipment. Improper grounding causes an erratic flow signal and is the number one cause of magnetic flowmeter measurement error. The corrosive nature of a Chlor-Alkali plant environment causes external corrosion of flowtube sensor ground wires, deteriorating the electrical connection necessary for reliable magmeter measurements.

This customer was experiencing high measurement variability on the magnetic flowmeter installed on their water evaporator line. They decided to replace the flowtube sensor and transmitter in order to fix the problem. After the flowtube sensor and transmitter were replaced, it was still not functioning properly. Many maintenance technicians often replace a transmitter and/or flowtube sensor without verifying the ground connection.

SOLUTION

It was suggested that the Rosemount 8712D transmitter with the DA1 high process noise and ground/wire fault detection diagnostics be used to troubleshoot the existing magmeter installation. The DA1 diagnostic can be run from the local operator interface or AMS® Suite. The diagnostics indicated a ground/wiring fault. Upon further inspection, it was realized that the same ground wires were utilized with the new flowtube sensor resulting in a bad ground connection.

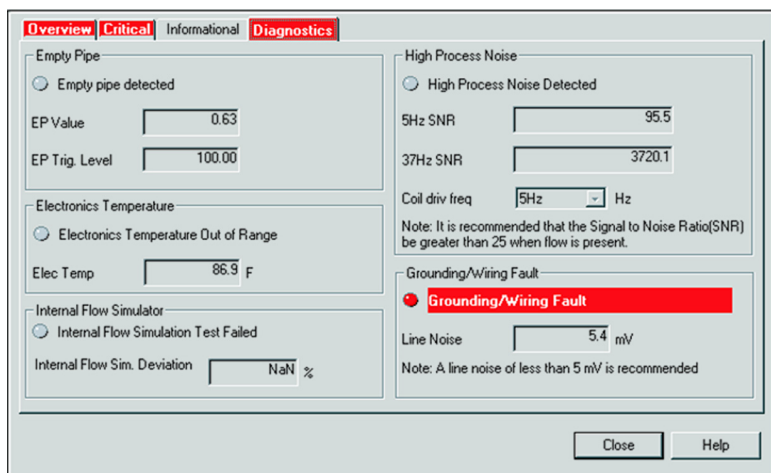
The Rosemount DA1 diagnostic detected ground wire corrosion, which improved maintenance practices.



Ground/Wiring Diagnostic

The original flow tube and transmitter were replaced when the source of the problem was corroded ground wires.

The customer recognized the value of the ground/wiring diagnostic to prevent unnecessary flowmeter replacement. This resulted in increased process uptime, and reduced maintenance costs associated with magmeter replacement. This was especially useful to them due to the highly corrosive nature of a Chlor-Alkali plant environment. By using the DA1 ground/wire fault diagnostic, they are assured their magnetic flowmeters have not lost the electrical connection to ground due to corrosion, thus eliminating the most common cause of flowmeter measurement error. As a result, they decided to order all future transmitters with the DA1 diagnostic option.



Ground/Wiring Fault Diagnostic in AMS Suite

RESOURCES

Emerson Process Management Chemical Industry

<http://www2.emersonprocess.com/en-US/industries/Chemical/Pages/index.aspx>

Rosemount Magnetic Flowmeters

<http://www2.emersonprocess.com/EN-US/BRANDS/ROSEMOUNT/FLOW/MAGNETIC-FLOWMETERS/Pages/index.aspx>

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