Supplement to Fisher® FIELDVUE™ DVC6000 SIS Digital Valve Controllers for Safety Instrumented System (SIS) Solutions Instruction Manual

Partial Stroke Test using ValveLink™ Software

The Partial Stroke Test procedure contained in this Instruction Manual Supplement is to be considered as a guideline only and should be modified to address site-specific requirements. Use this procedure in conjunction with the appropriate Safety Manual for FIELDVUE DVC6000 SIS Digital Valve Controllers for Safety Instrumented System (SIS) Solutions (0-20 mA or 0-24 VDC [D103035X012] or 4-20 mA [D103294X012]) and the FIELDVUE DVC6000 SIS Digital Valve Controllers for Safety Instrumented System (SIS) Solutions Instruction Manual (D103230X012). In addition, exercise good engineering practices and abide by specific plant safety guidelines for safe operation.

Note

This procedure requires the use of ValveLink™ Software, version 7.3 or later.

This procedure should be done with the digital valve controller's Instrument Mode set to "In Service". There is nothing in the scope of this procedure that requires the digital valve controller's Instrument Mode be set to "Out of Service".

Partial Stroke Test Procedure

The Partial Stroke Test allows DVC6000 SIS digital valve controllers to perform a Valve Signature type of test while the instrument is in service and operational. In an SIS application, it is important to be able to exercise and test the shut down valve to verify that it will operate when commanded. This feature allows you to partially stroke the valve while continually monitoring the shut down signal. If a demand arises, the test is aborted and the valve moves to its commanded position. The purpose of this test is to ensure that the valve assembly moves upon demand.

1. Physically inspect the valve and positioner assembly in the field for any loose screws, loose mounting bracket, loose feedback linkage, loose or broken tubing/conduit or the other mechanically loose conditions. Check air filter regulators to ensure they are operating properly. Inspect gauges and verify that they are reading correctly.

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2. From the ValveLink Device Connection View, double-click on the valve icon corresponding to the desired tag (refer to figure 1).

3. When the Status screen appears, check the Auto Stop After Next Complete Read box. Verify that the instrument is connected and Instrument Mode is In Service (light bulb at bottom right-hand side is shown yellow). Click the Start Monitoring button. When available click Save Dataset.

Figure 1. Start Monitoring
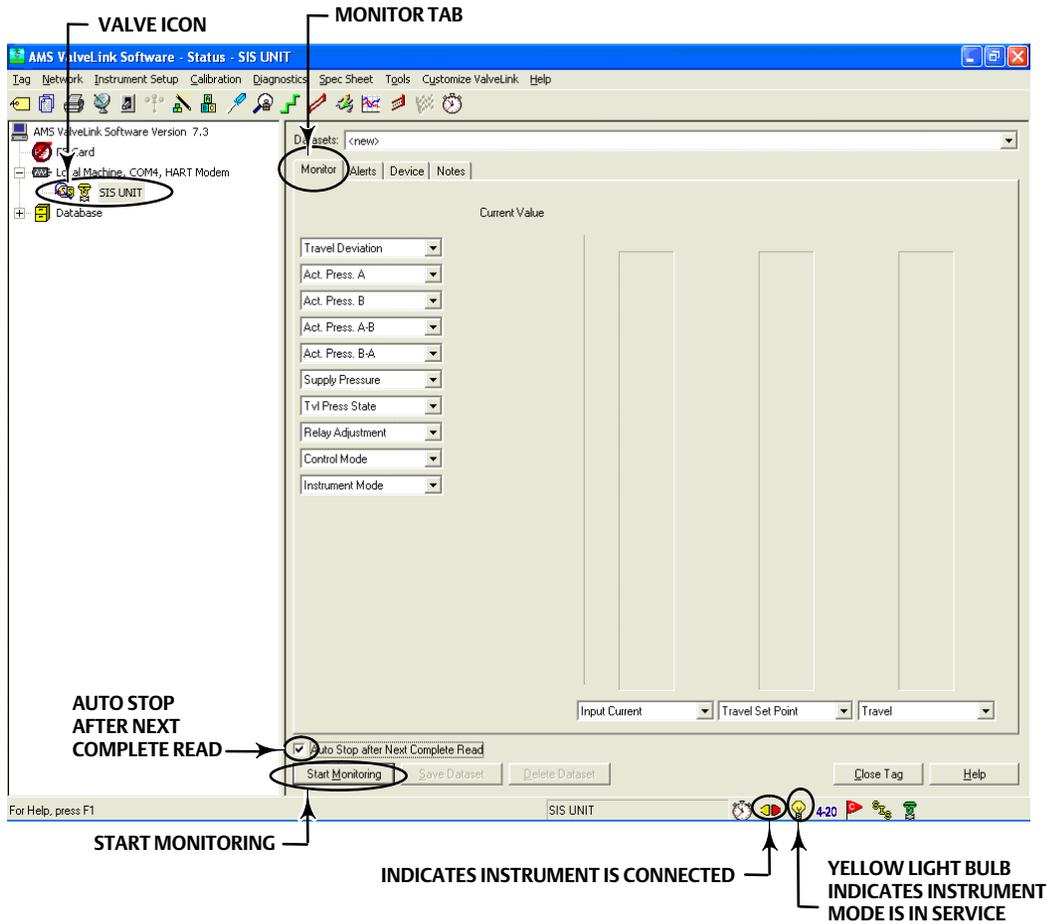
4. On the Monitor tab (see figure 2) check the input signal, valve travel, output pressure, supply pressure, drive signal, temperature, and other variables to ensure that all readings are OK.

5. Click on the Alerts tab, as shown in figure 3, and scroll through the alerts.

Figure 2. Check Parameters on Monitor Tab

MONITOR TAB

CHECK PARAMETERS

Figure 3. Alerts Tab

ALERTS TAB

CURRENT VALUES ARE ABOVE/ BEYOND THE ALERT POINTS

GREEN LIGHTS INDICATE ALERTS ARE ENABLED BUT NOT ACTIVE.

RED LIGHTS INDICATE ALERTS ARE ACTIVE.

GRAYED OUT STATUS INDICATES ALERT IS NOT ENABLED.
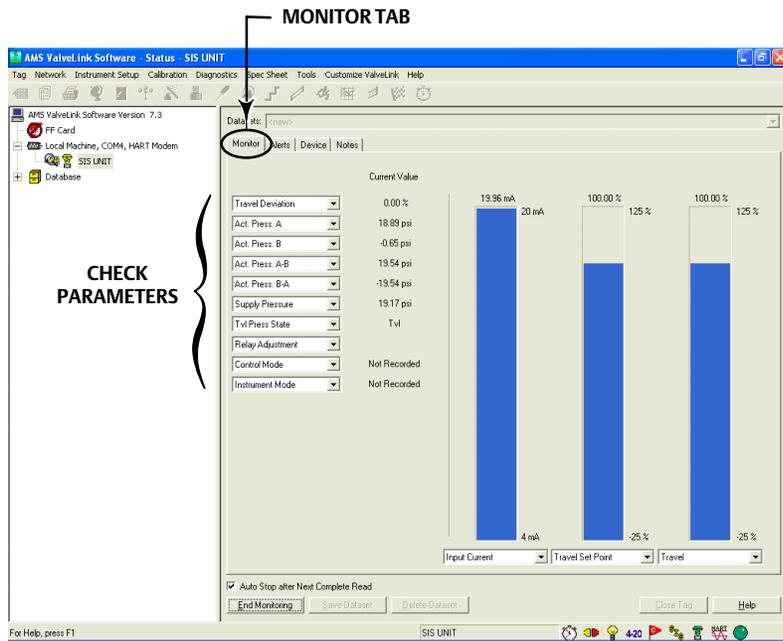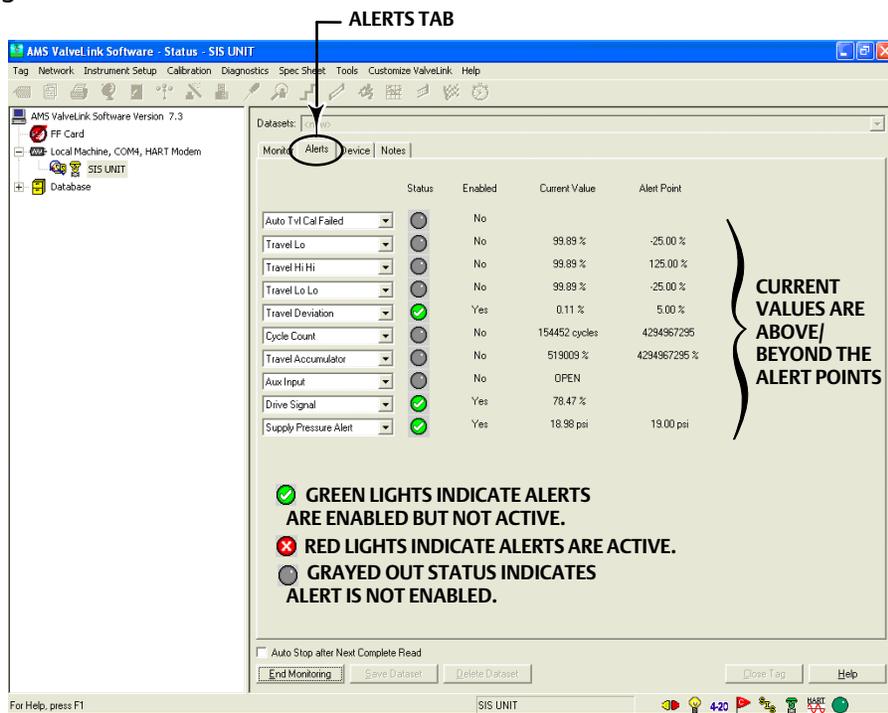
Figure 4. Instrument Alert Record
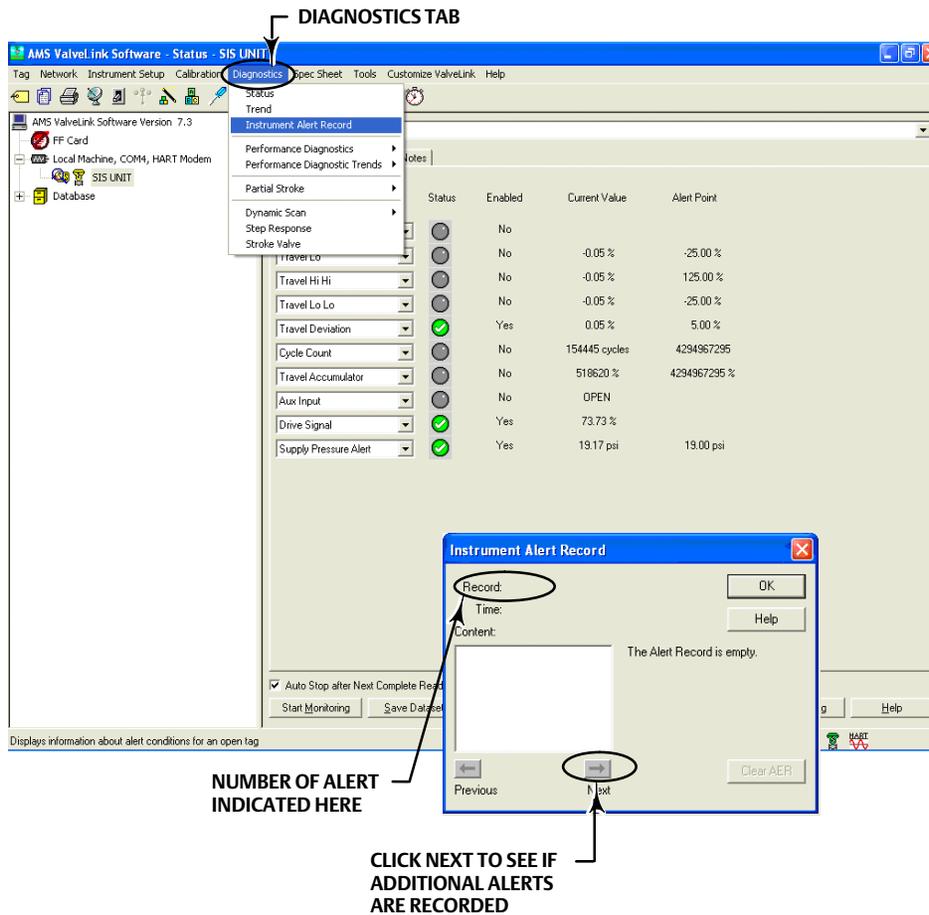
6. Go to the Diagnostics tab (see figure 4) and select Instrument Alert Record. Note any alerts. Any active alert message should be resolved before proceeding to the Partial Stroke Test. Clear the Instrument Alert Record.

7. Verify that the Instrument Mode is In Service (light bulb at bottom right-hand side is yellow).

8. Perform a Partial Stroke Test using ValveLink Software.

   a. Select Partial Stroke > Ramp under the Diagnostics tab, as shown in figure 5, or

   b. Click on the Partial Stroke Ramp icon on the tool bar.

Note

If there is previous test data present in the microprocessor memory it will be automatically retrieved at this point. Refer to step 8f.

Figure 5. Partial Stroke Test
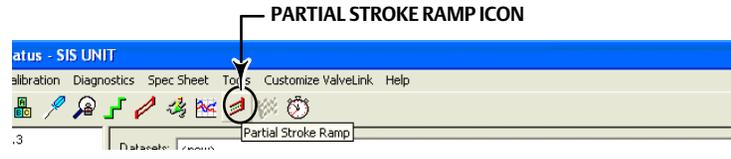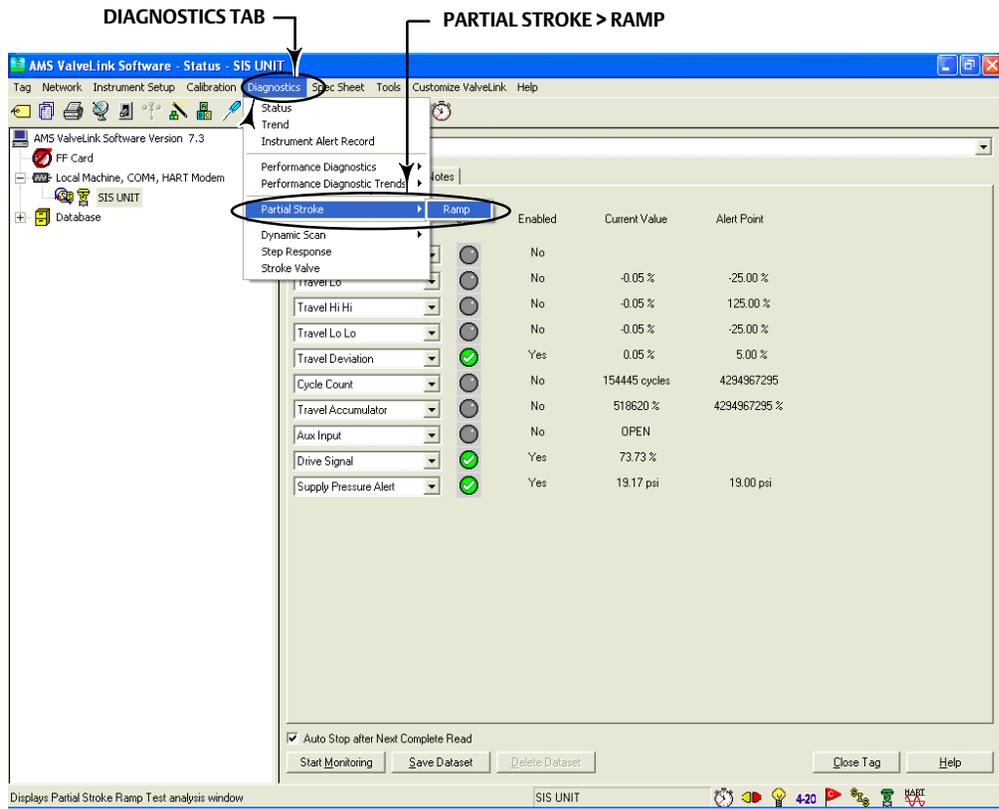
Figure 6. Verify Test Parameters
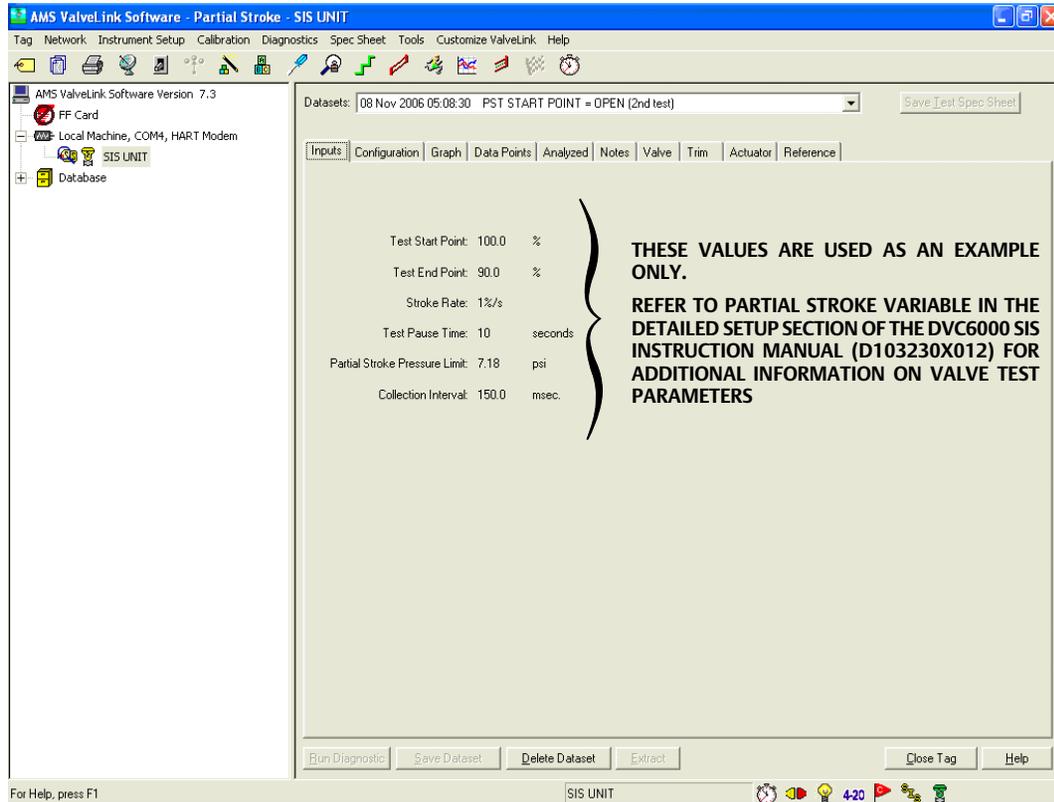
c. Verify that the test parameters are correct, see figure 6.

d. Click on Run Diagnostic, then OK when you are prompted with the Warning screen, figure 7.

Figure 7. Run Diagnostic Warning Screen
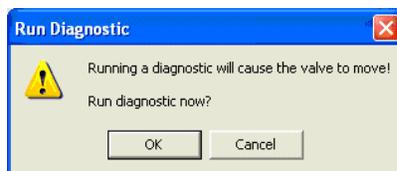
e. The Progress bar will be shown while the Partial Stroke test is running, as shown in figure 8.

Figure 8. Partial Stroke Test Progress Bar
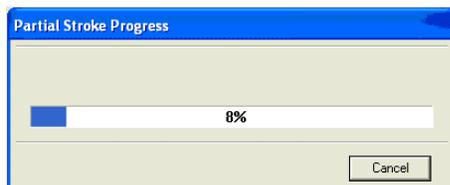
f. If any Partial Stroke Test data is present in the microprocessor memory, it will be automatically uploaded when Partial Stroke Ramp is selected in ValveLink Software.

Figure 9. Partial Stroke Upload
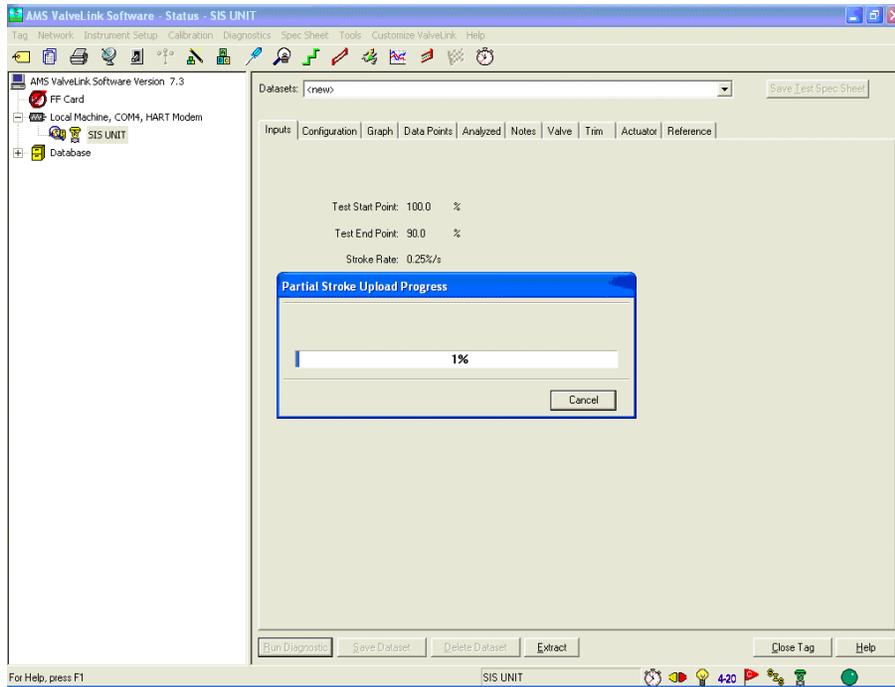
9. Once the test is run/uploaded completely, click on the Notes tab to type in the test name. Click on Save Dataset to the save the Partial Stroke Test results.

10. Click on the Graph tab (see figure 10) and select Valve Signature.

Figure 10. Graph Tab
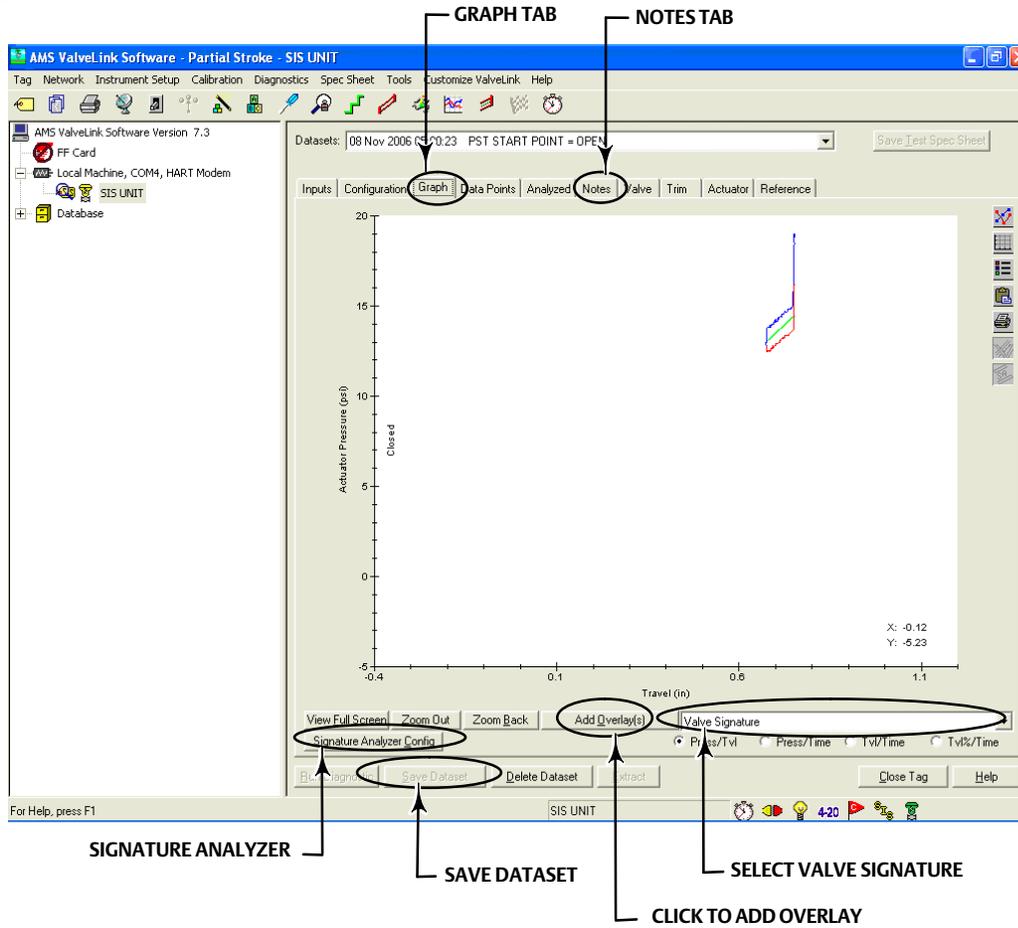
11. Click on the Signature Analyzer button (see figure 11) to analyze friction of the valve. Signature Analyzer serves as a tool to check on valve performance.

Note

Signature Analyzer is available clicking on the Save Dataset button after completion of the Partial Stroke Test.

Figure 11. Signature Analyzer
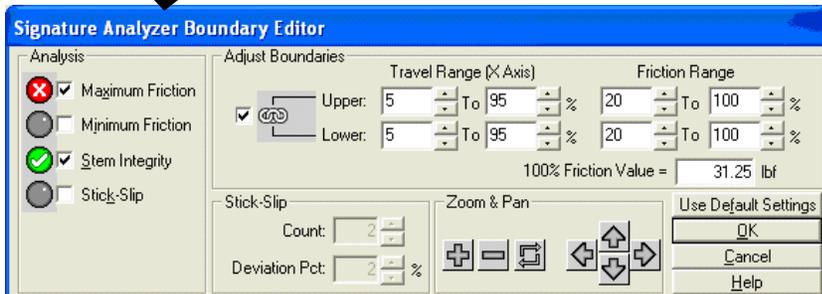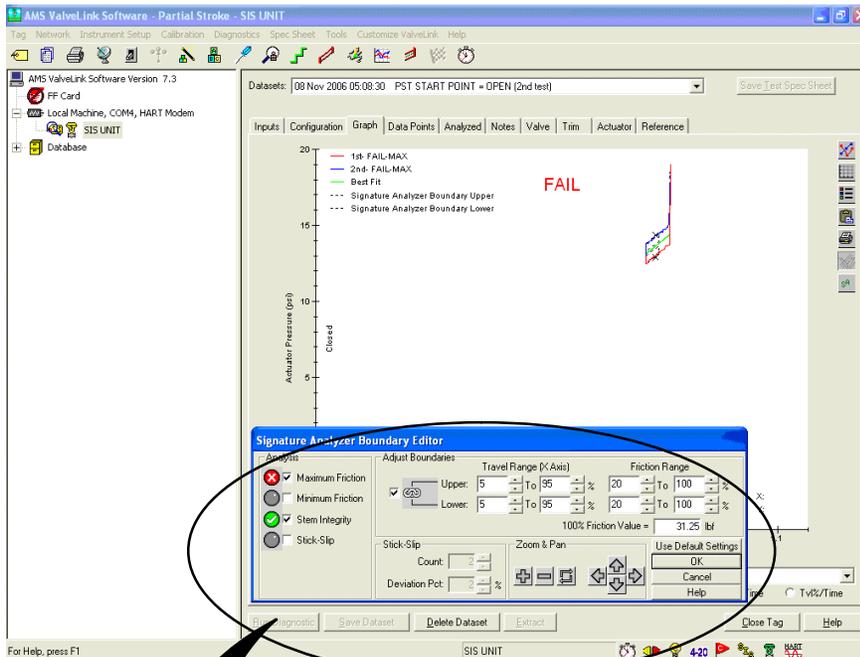
12. Clicking on the Add Overlay button (see figure 12) allows you to overlay a graph from a previously saved dataset on top of the graph currently displayed. Overlay the resulting graph with previous graphs and look for any inconsistencies.

    a. Overlay the most recent test graph and look for any inconsistencies.

    b. Overlay the initial (oldest date) test graph and look for any inconsistencies.

Figure 12. Add Overlay

ADD/REMOVE OVERLAY
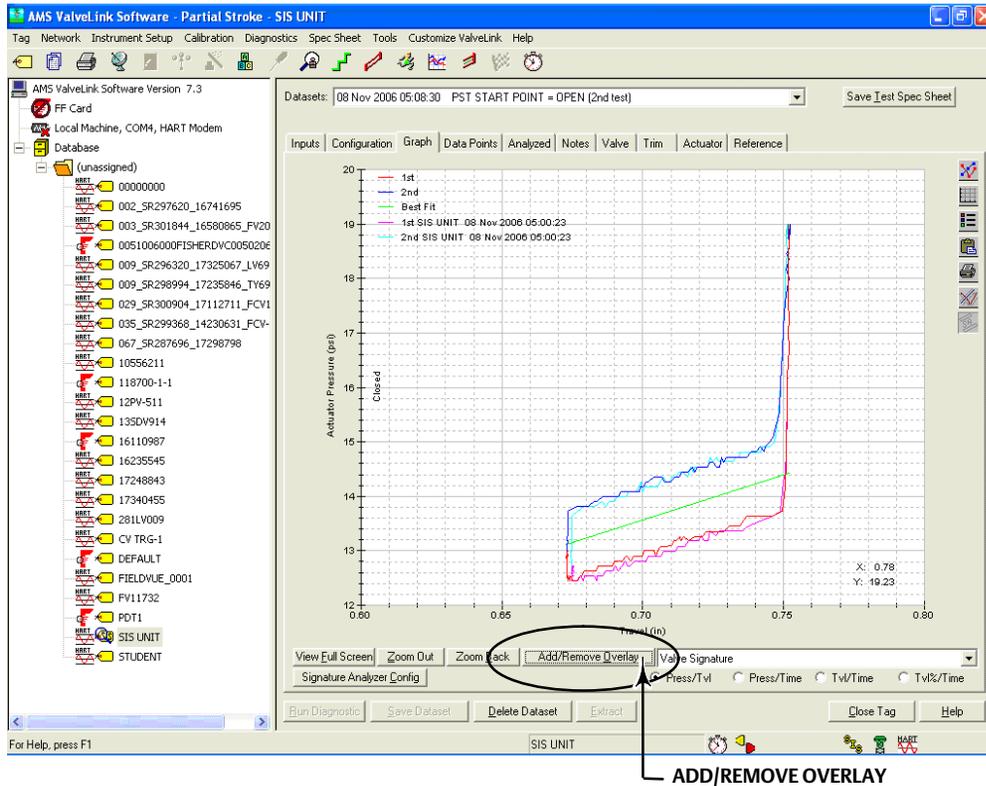
13. Should alarms or alerts be detected during operation, maintenance, or periodic inspection and test, notify the appropriate personnel.

14. After the Partial Stroke Test is completed, go to the Status screen and select Start Monitoring to verify that all variables are in-line with expected values.

15. Click the Dataset Report icon (see figure 13) and save the report to a file.

Figure 13. Dataset Report

DATASET REPORT ICON
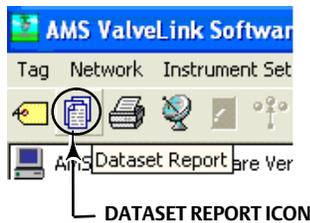
Related Documents

- Bulletin 62.1:DVC6000 SIS - Fisher FIELDVUE DVC6000 SIS Digital Valve Controllers for Safety Instrumented System (SIS) Solutions (D102784X012)

- Fisher FIELDVUE DVC6000 SIS Digital Valve Controllers for Safety Instrumented System (SIS) Solutions Instruction Manual (D103230X012)

- Fisher FIELDVUE DVC6000 SIS Digital Valve Controllers for Safety Instrumented System (SIS) Solutions Quick Start Guide (D103307X012)

- Safety Manual for FIELDVUE DVC6000 Digital Valve Controllers for Safety Instrumented System (SIS) Solutions <u>0-20 mA or 0-24 VDC</u> (D103035X012) or

- Safety Manual for FIELDVUE DVC6000 Digital Valve Controllers for Safety Instrumented System (SIS) Solutions <u>4-20 mA</u> (D103294X012)

- Partial Stroke Test Using 475/375 Field Communicator—Supplement to Fisher FIELDVUE DVC6000 SIS Digital Valve Controllers for Safety Instrumented System (SIS) Solutions Instruction Manual (D103320X012)

- Pre-Commissioning Installation / Setup Guidelines using ValveLink Software—Supplement to Fisher FIELDVUE DVC6000 SIS Digital Valve Controllers for Safety Instrumented System (SIS) Solutions Instruction Manual

- ValveLink Software Help or Documentation

Note

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