ValveLink Diagnostic Interpretation

PCE Pacific, Inc.

EMERSON. Process Management

Tips for Troubleshooting DVC's

"Start troubleshooting a FIELDVUE Instrument by knowing how it works and then by recognizing device symptoms that are out of the ordinary.

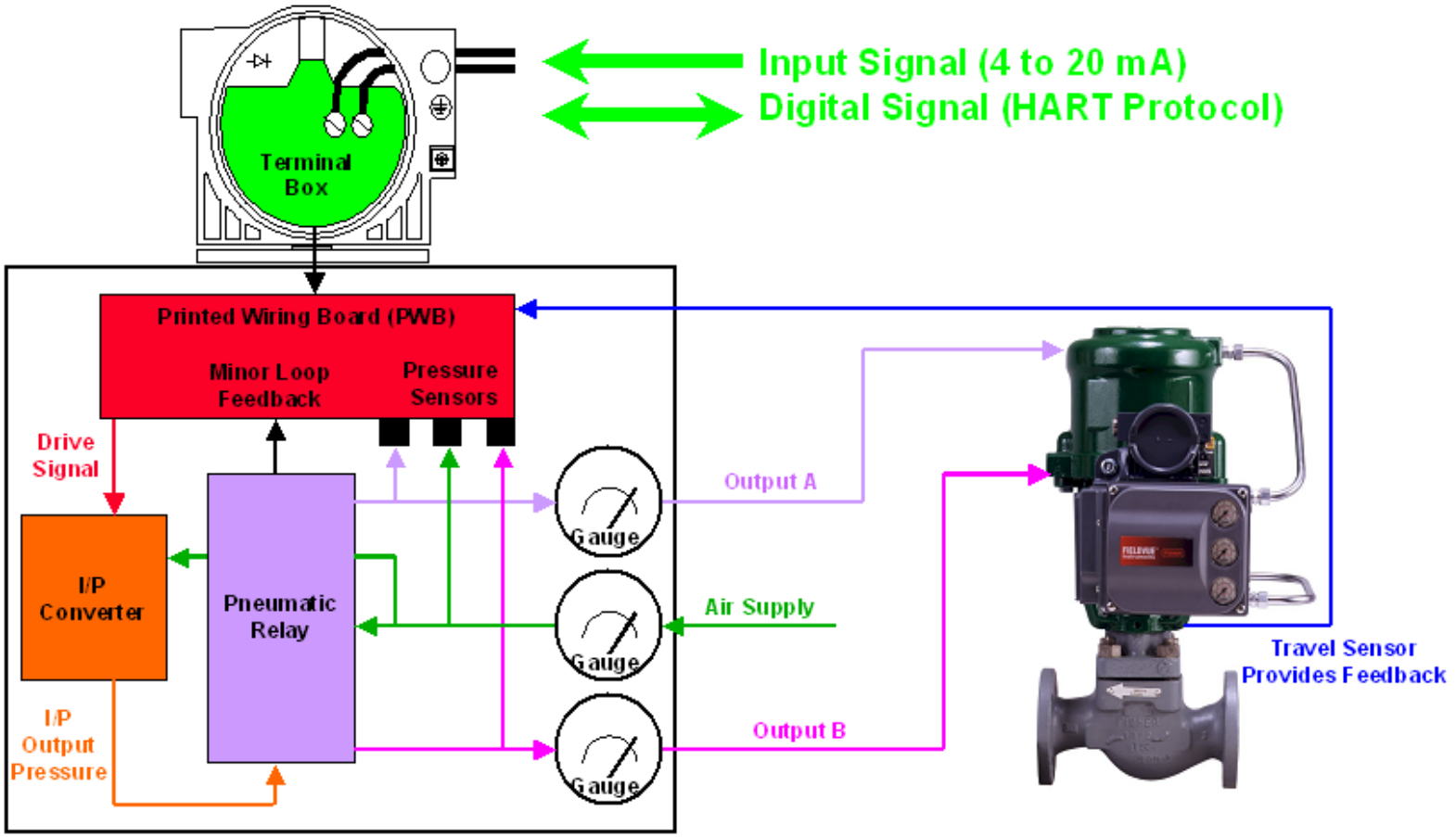
It is easier to recognize bad behavior if you are familiar with normal behavior."

- Jeff VonAhnen, Fisher Controls

PCE Pacific, Inc.

EMERSON. Process Management

Principle of Operation (normal behavior)



Tips for Troubleshooting DVC's

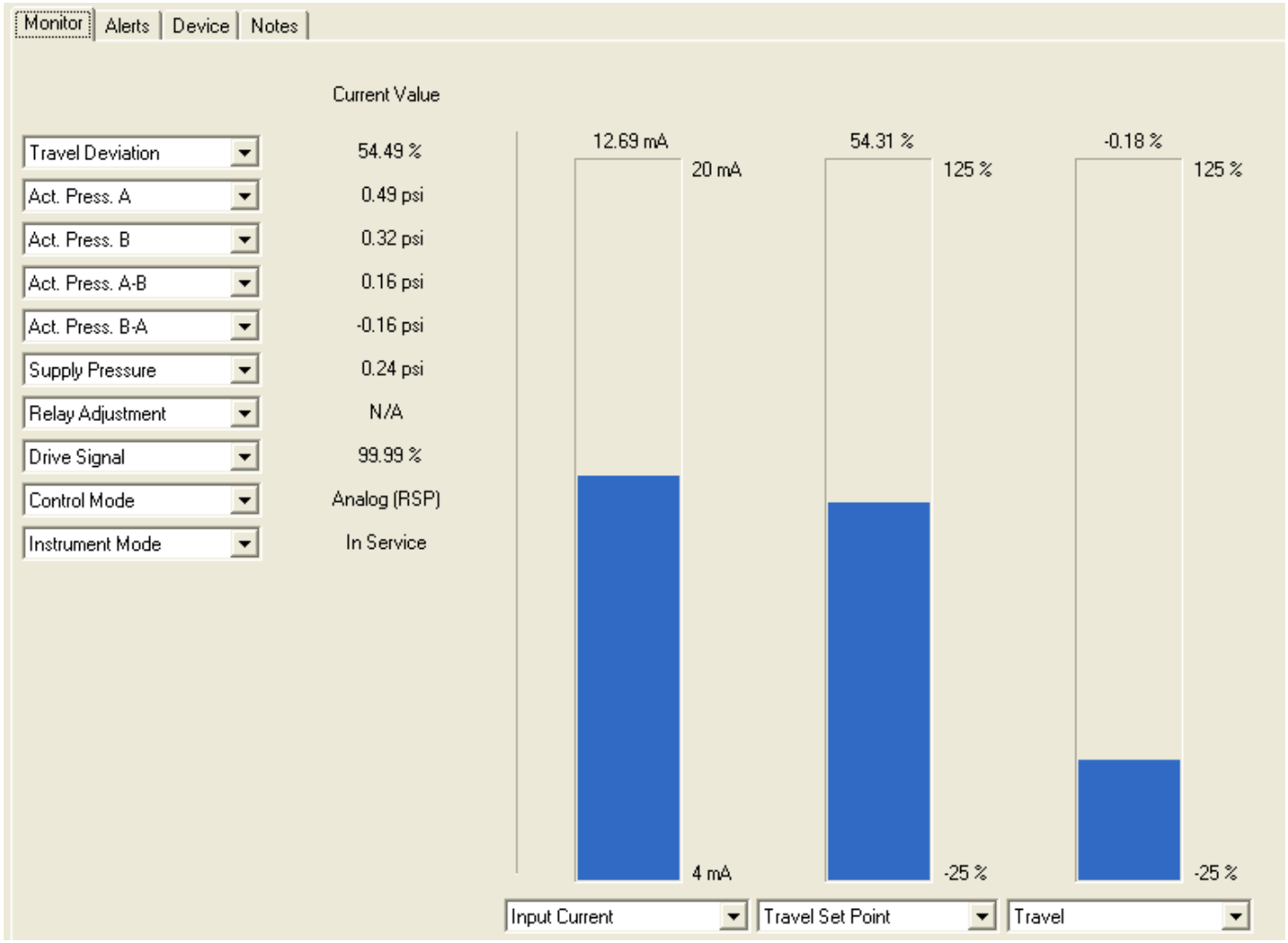
"DVC's *are* SMART positioners, but they *aren't* brilliant. The biggest advantages come from talking with them to find out what they know and then adding your own *brain-power* to the equation."

- Eric Barton, PCE Pacific

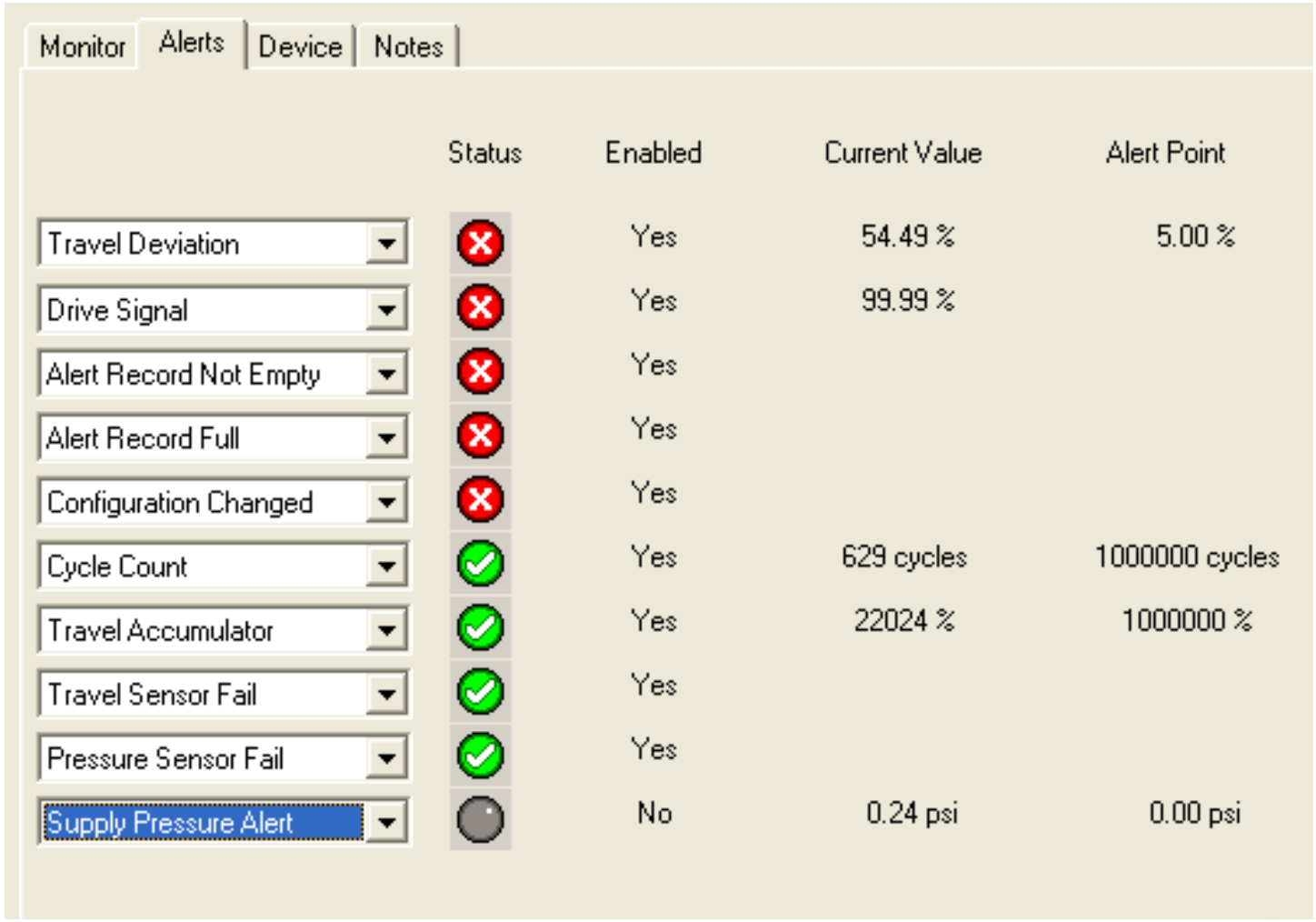
PCE Pacific, Inc.

EMERSON. Process Management

HC Diagnostics - Status Monitor

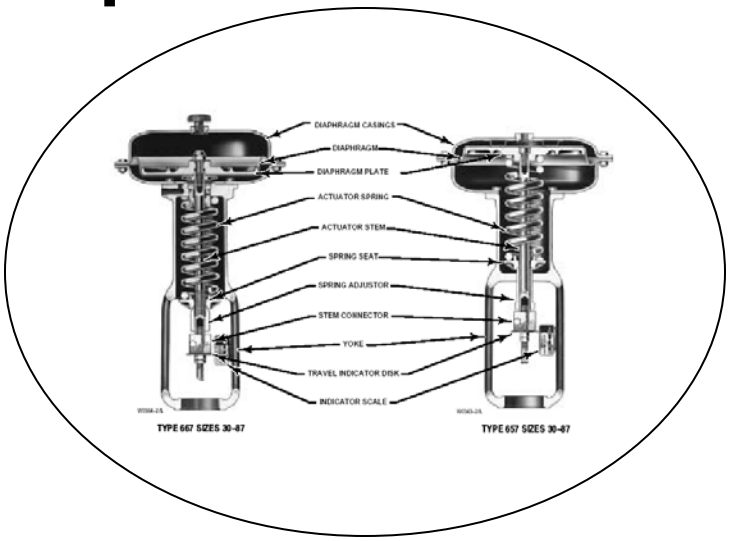


Learn from the Alerts what the DVC knows.



Add what you know to solve the problem.

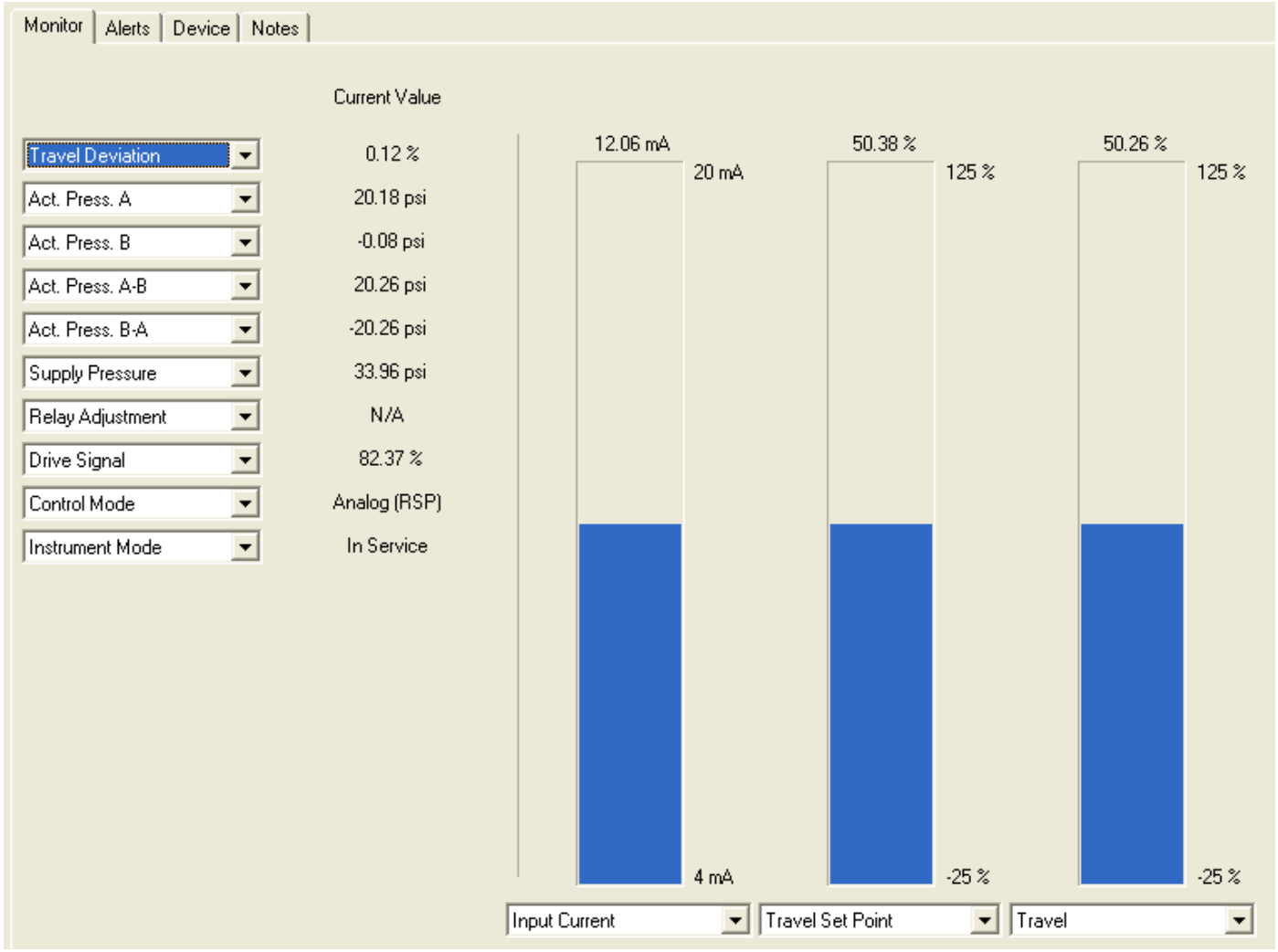
Actuators need air to move a valve.



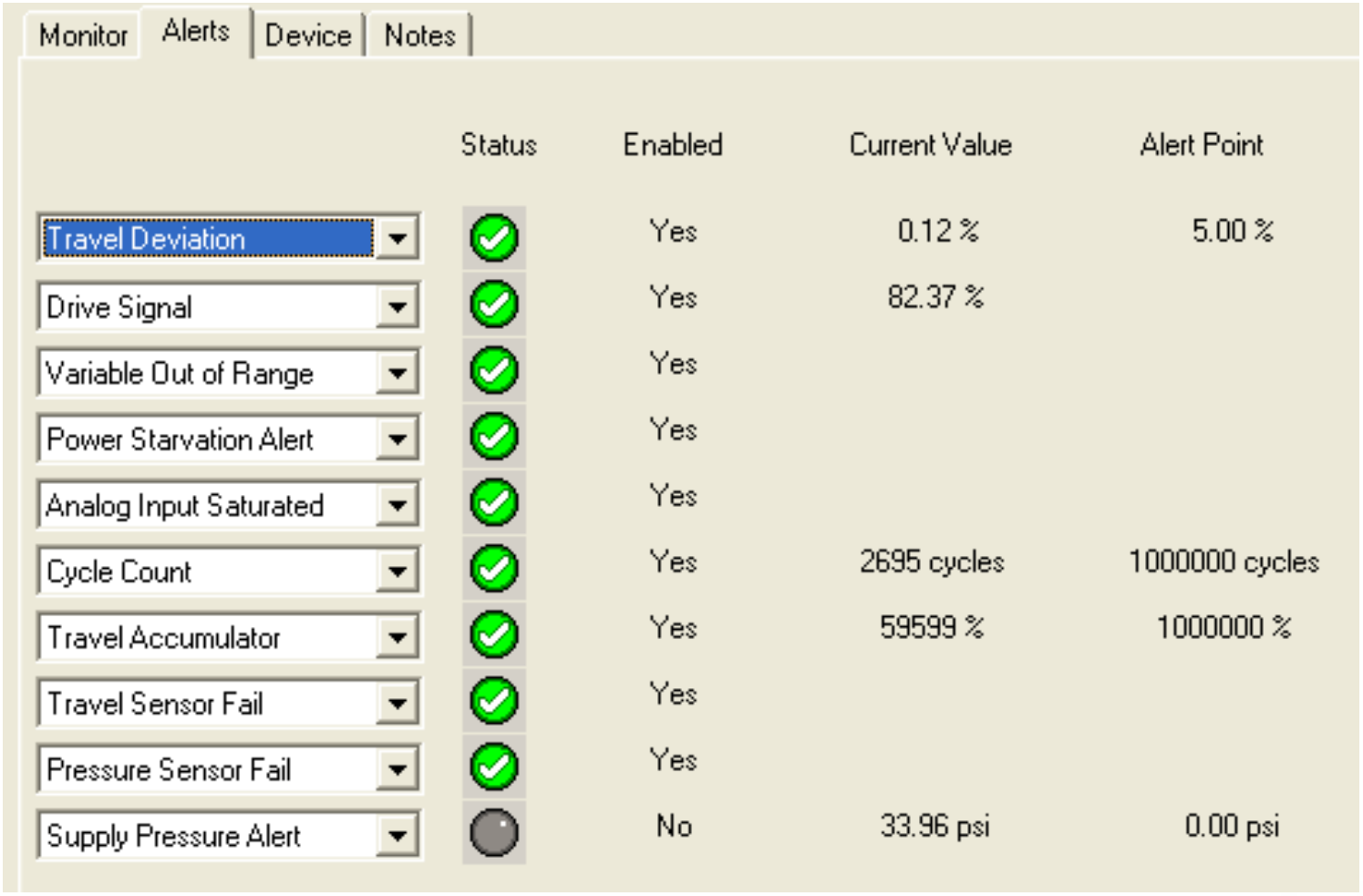
PCE Pacific, Inc.

EMERSON. Process Management

Problem Solved

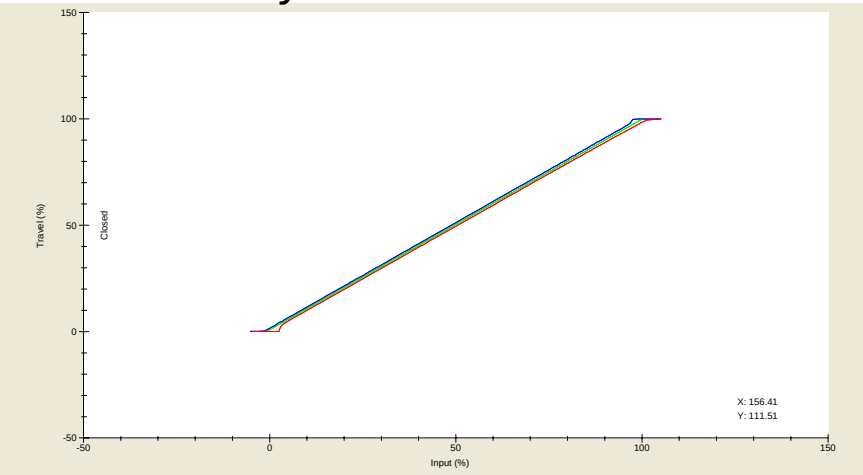


Normal Behavior

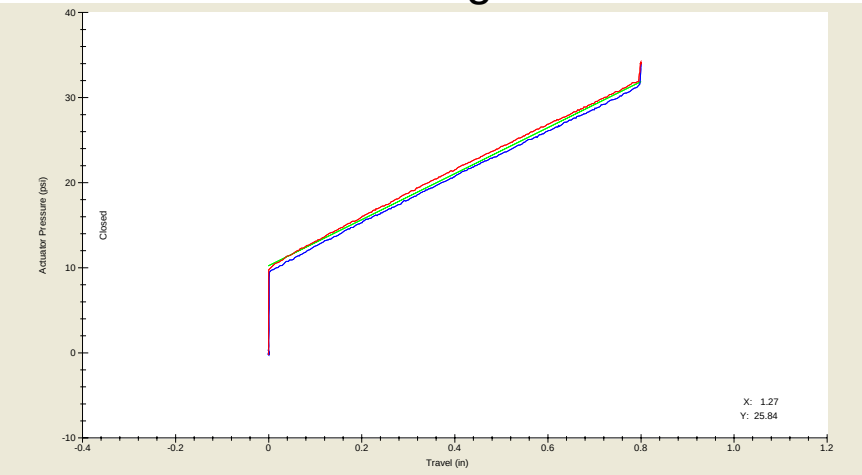


AD Diagnostics - Total Scan

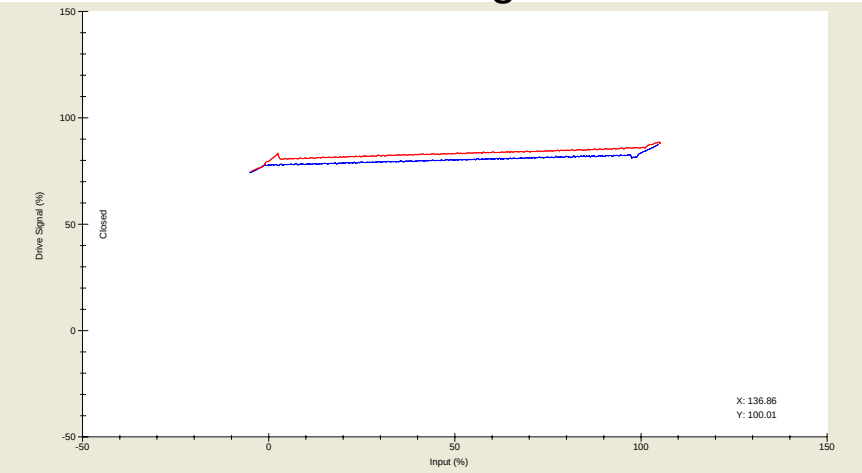
Dynamic Error Band



Valve Signature



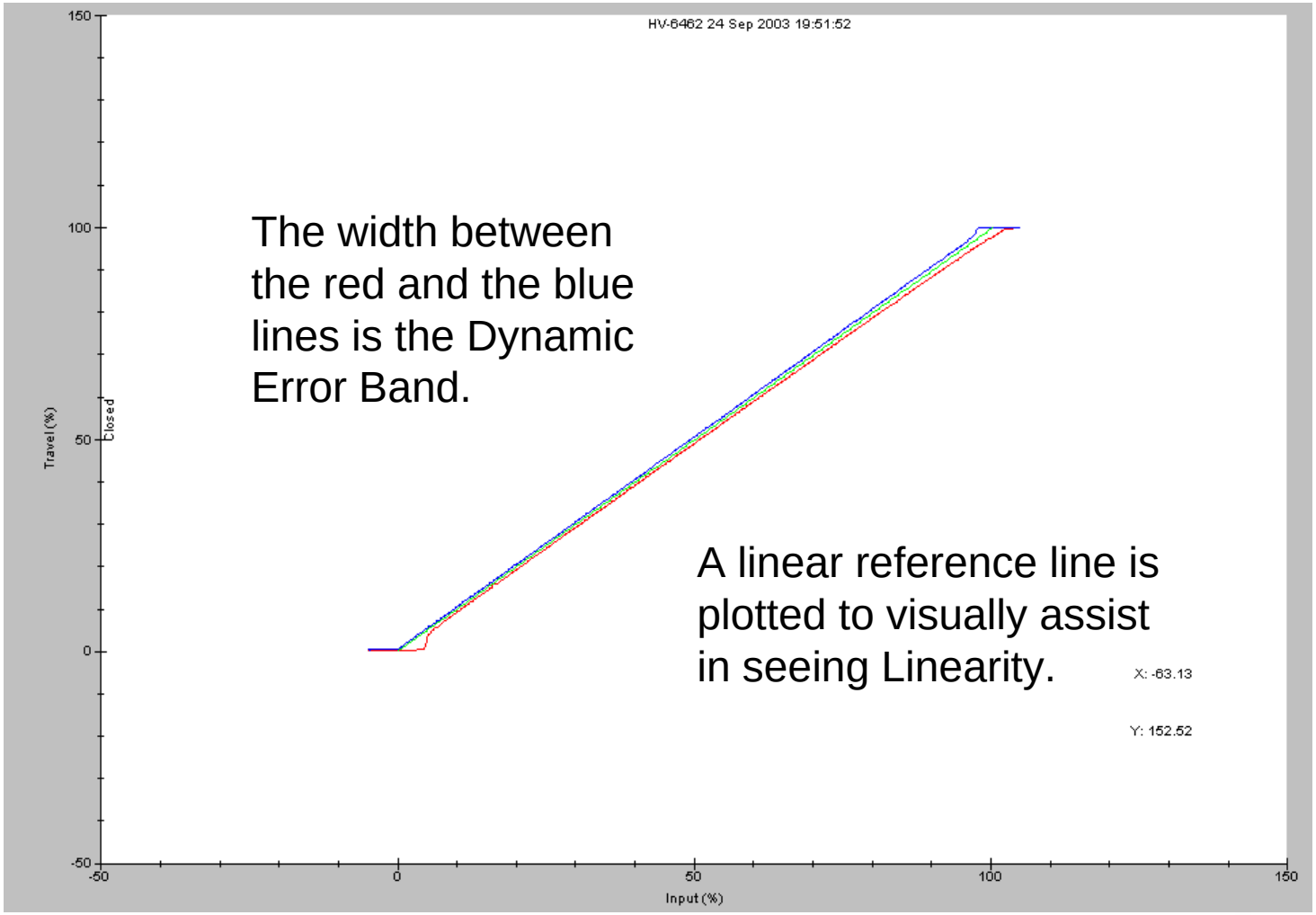
Drive Signal



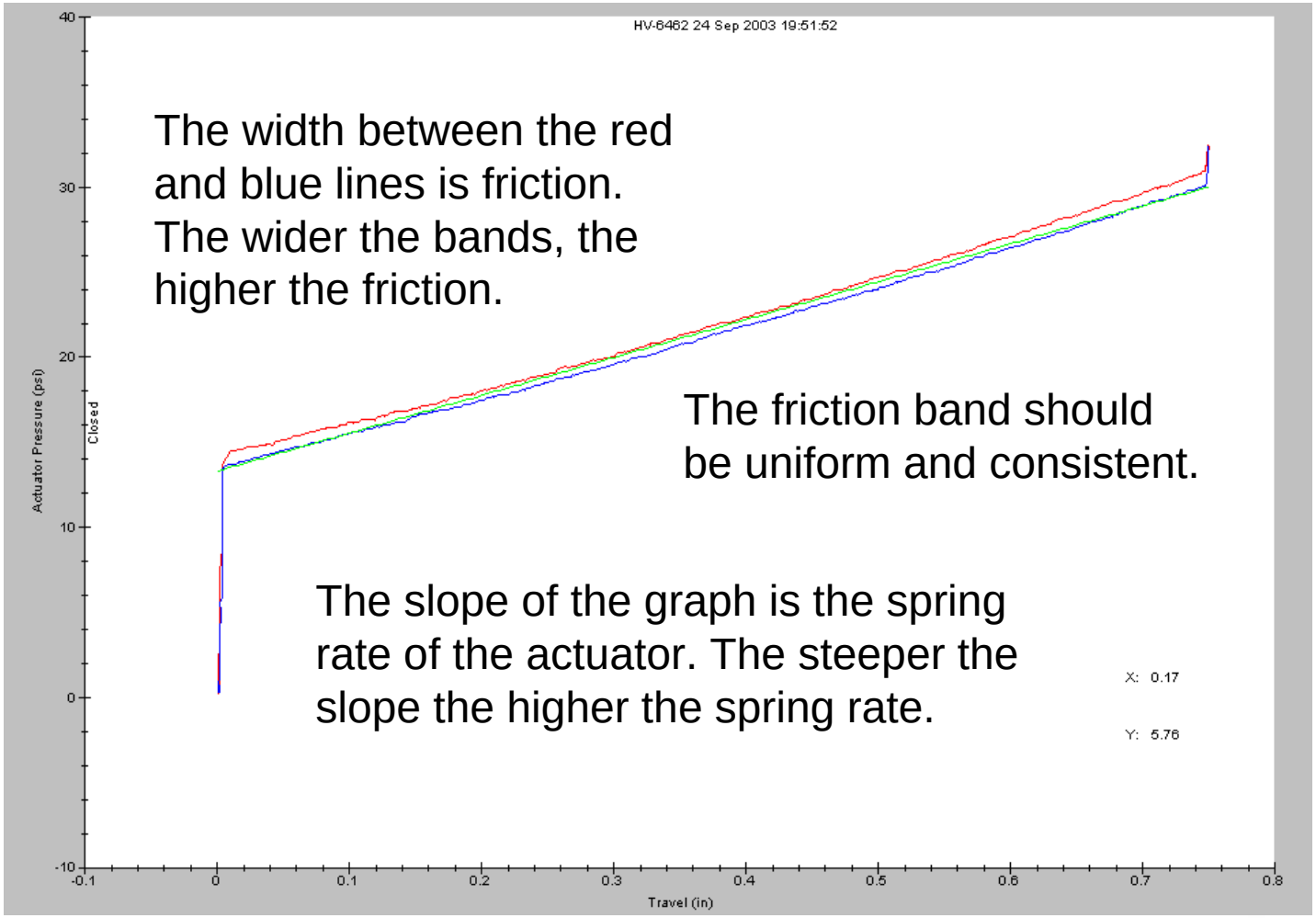
PCE Pacific, Inc.

EMERSON Process Management

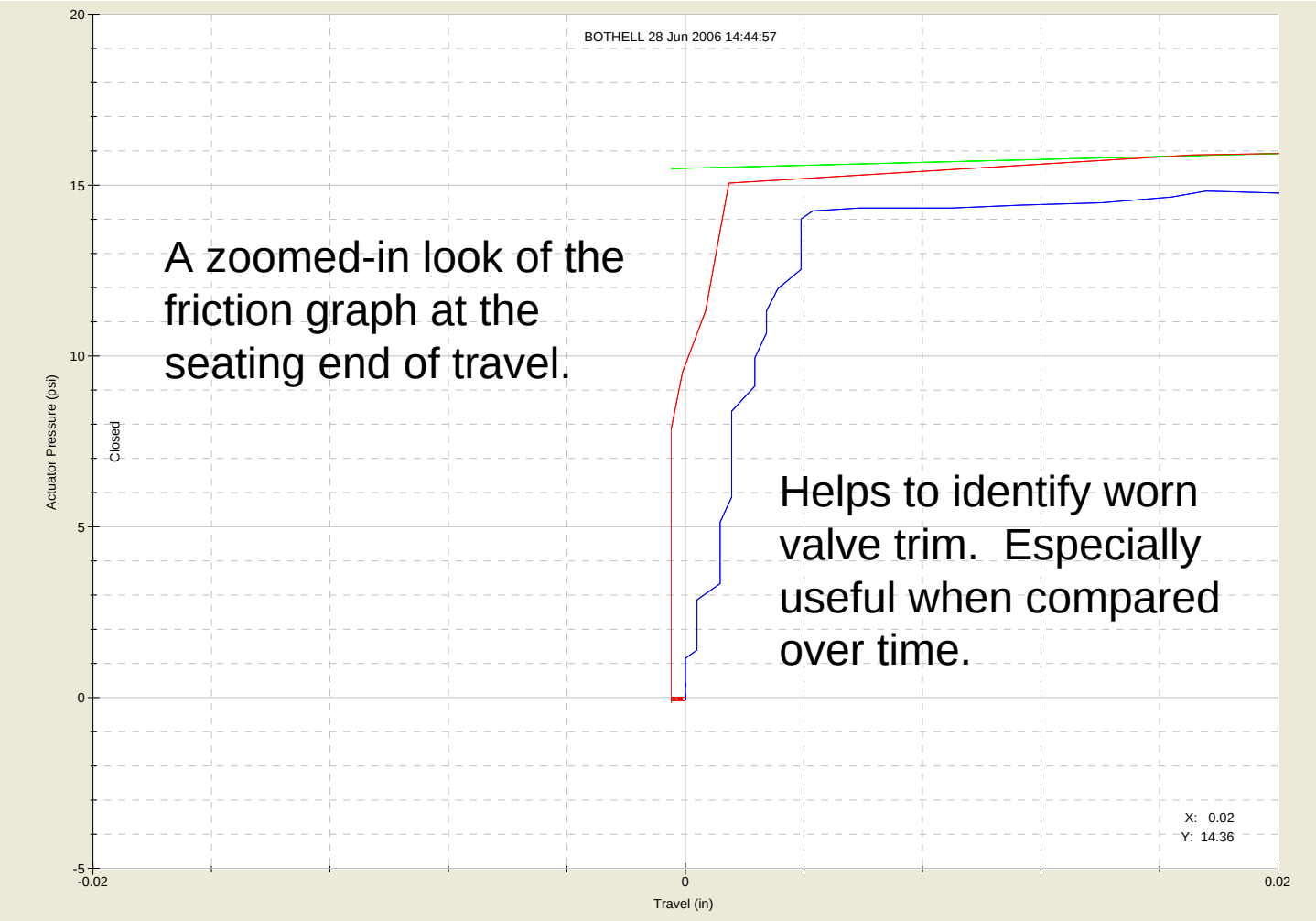
Dynamic Error Band (Overall Performance)



Valve Signature (aka. Friction Graph)



Seating Profile



Fill in Spec Sheet for Analyzed Data

Valve

Manufacturer:	Fisher Controls
Model:	EZ
Size:	1 in
Class:	150
Rated Travel (in, mm, or cm):	0.75 in
Actual Travel (in, mm, or cm):	0.8 in
Stem Diameter (in, mm, or cm):	0.375 in
Packing Type:	TFE / Single
Inlet Pressure (psi, bar, or kPa):	100.0 psi
Outlet Pressure (psi, bar, or kPa):	0.0 psi

Actuator

Manufacturer:	Fisher Controls
Model:	667
Size:	30
Effective Area (in2, mm2, cm2):	46.0 in2
Air:	Opens
Lower Bench Set:	10.0 psi
Upper Bench Set:	30.0 psi
Nominal Supply Pressure:	35.0 psi
Spring Rate:	1230.0 lbf/in

Trim

Seat Type:	Metal
Leak Class:	IV
Port Diameter (in, mm, or cm):	1.0 in
Port Type:	Unbalanced
Flow Direction:	Up
Push Down To:	Close
Flow Tends To:	Open
Unbal. Area (in2, mm2, or cm2):	0.79 in2

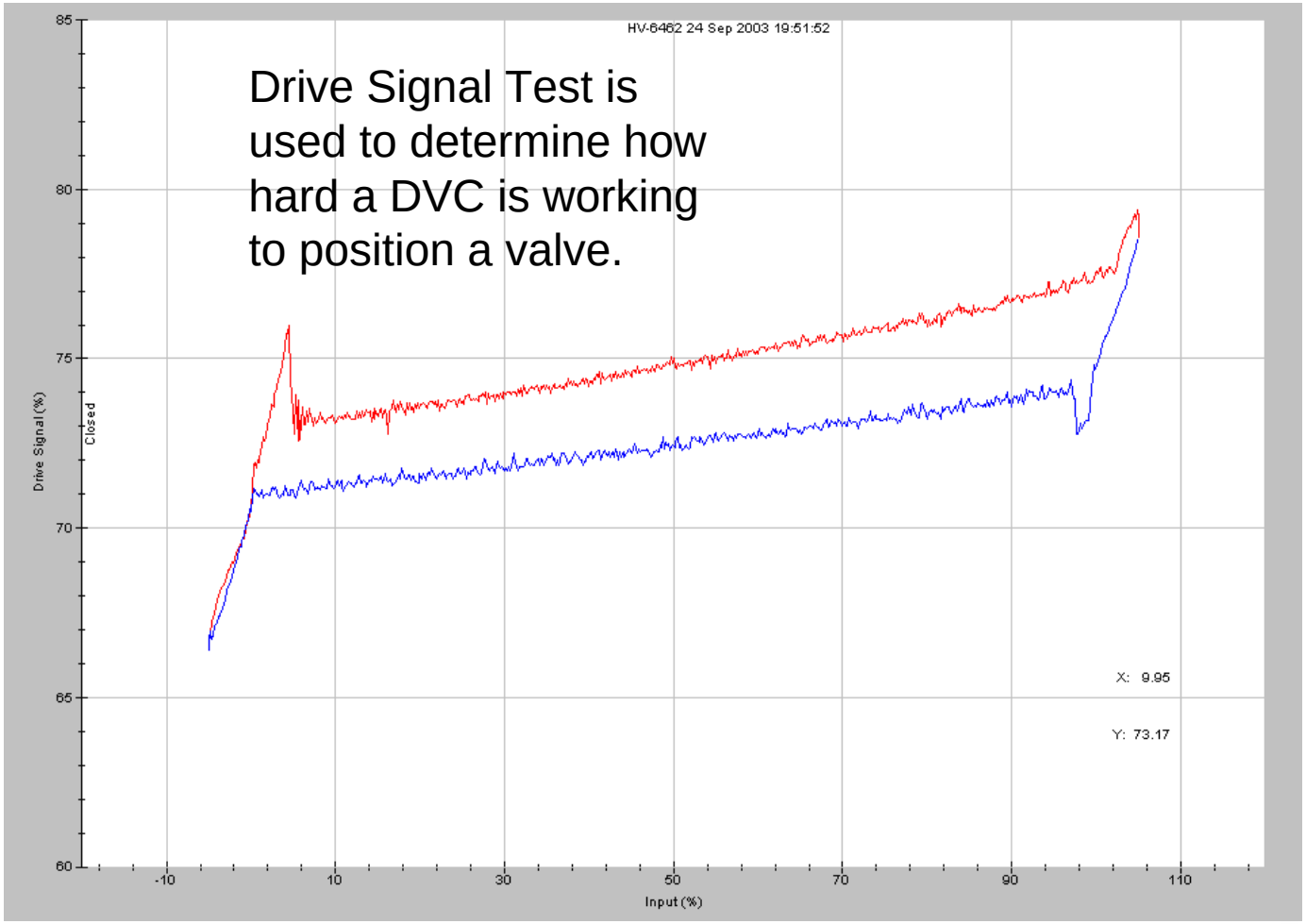
Total Scan - Analyzed Data

Zero Ranged Travel at:	3.87	mA
Full Ranged Travel at:	20.03	mA
Average Dynamic Error:	1.73	%
Maximum Dynamic Error:	2.28	%
Minimum Dynamic Error:	1.35	%
Dynamic Linearity (Ind):	0.12	%
Average Friction:	17	lbf
Maximum Friction:	22.5	lbf
Minimum Friction:	11	lbf
Expected Packing Friction:	38	lbf
Expected Total Friction:	38	lbf
Spring Rate:	1243.91	lbf/in
Bench Set:	11.59 - 31.87	psi
Seat Load As Tested:	447.11	lbf
Service Seat Load:	368.57	lbf
Required Seat Load:	125.66	lbf

PCE Pacific, Inc.

EMERSON. Process Management

Drive Signal Graph (I/P & Relay Integrity)



I/P Module: Reaction to Drive Signal

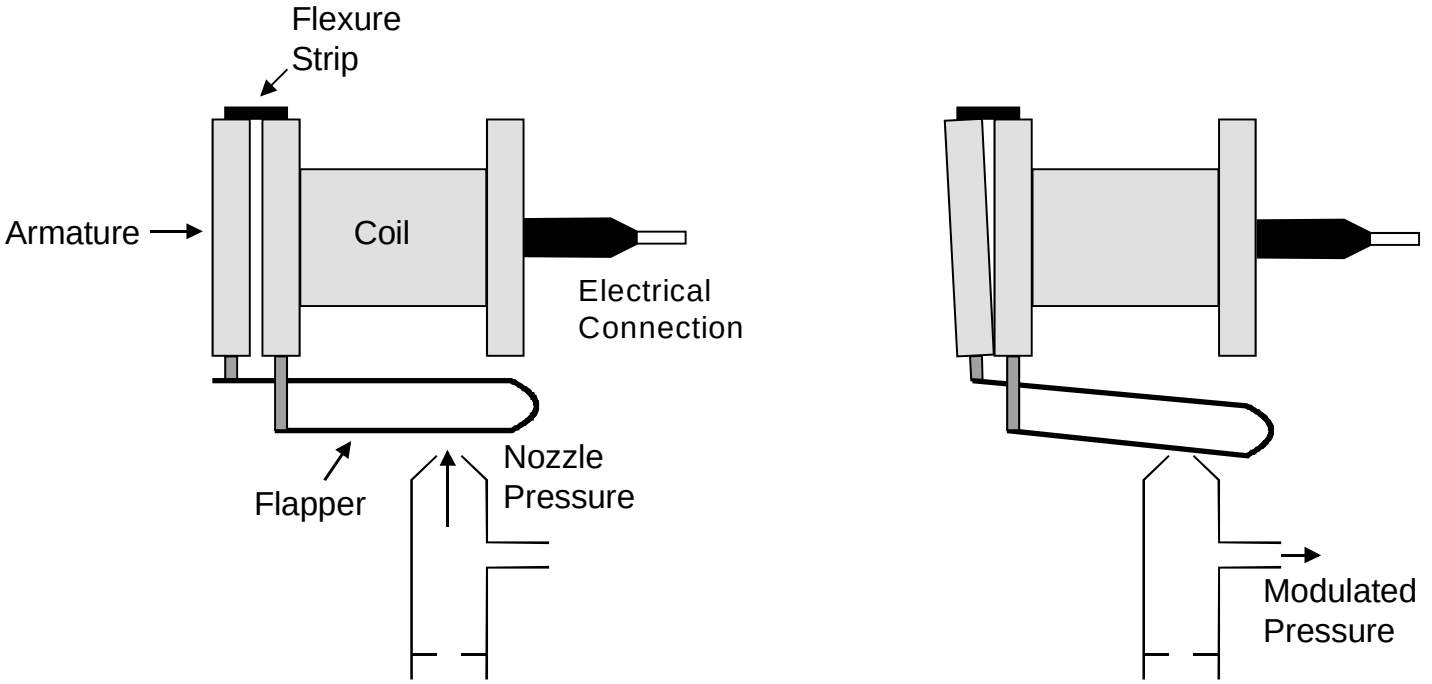
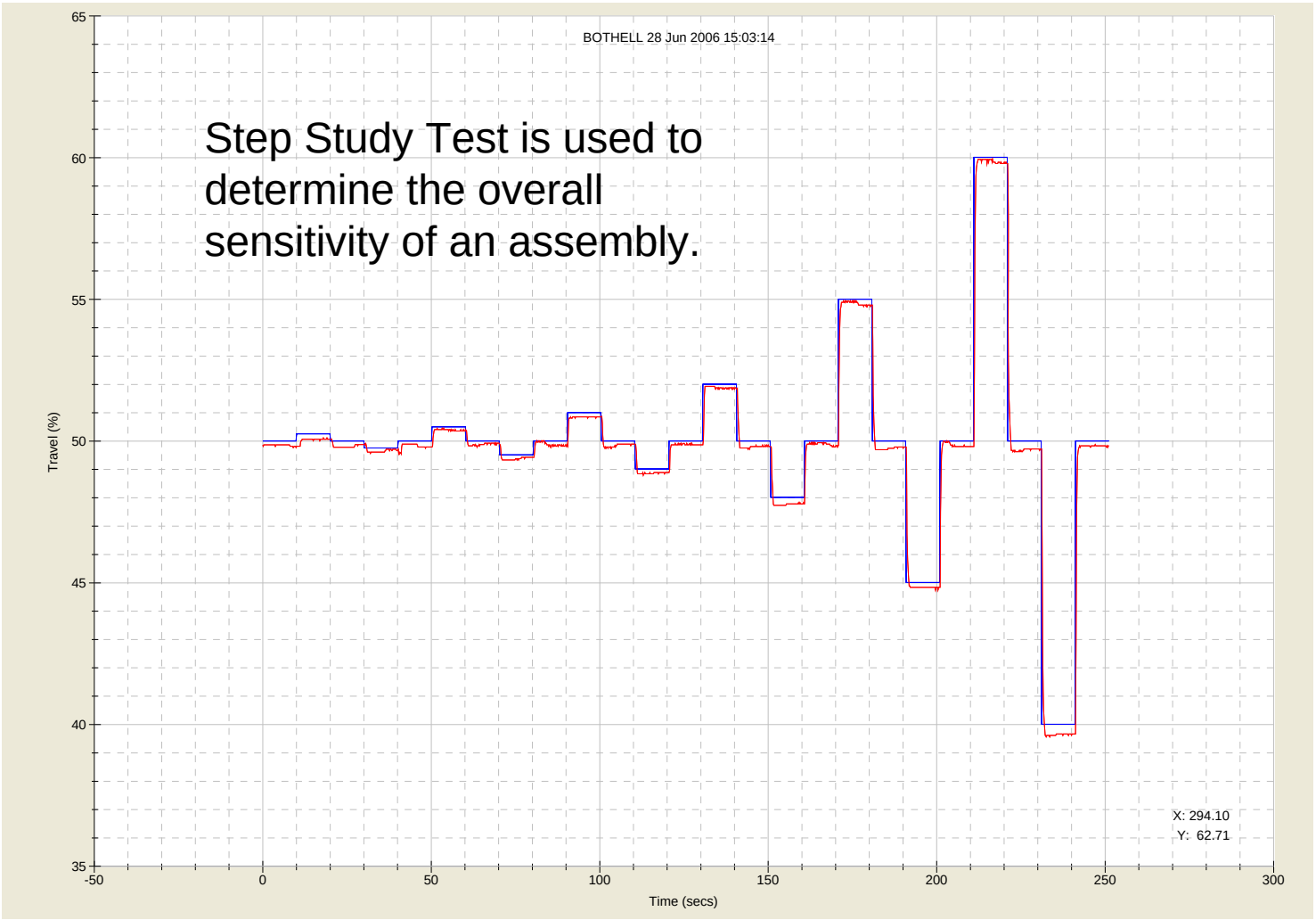


Figure 2-9. Concept of I/P Operation; Flapper Movement Exaggerated

AD Diagnostics - Step Study Test



PD Diagnostics: On-line and In-Service

- One Button Sweep
  - Supply Pressure Diagnostic
  - Travel Deviation Diagnostic
  - I/P & Relay Integrity Diagnostic
  - Air Mass Flow Diagnostic
- Profile
  - Triggered Profile
- Valve Friction
  - Valve Friction Trends

PCE Pacific, Inc.

EMERSON. Process Management

Thank You