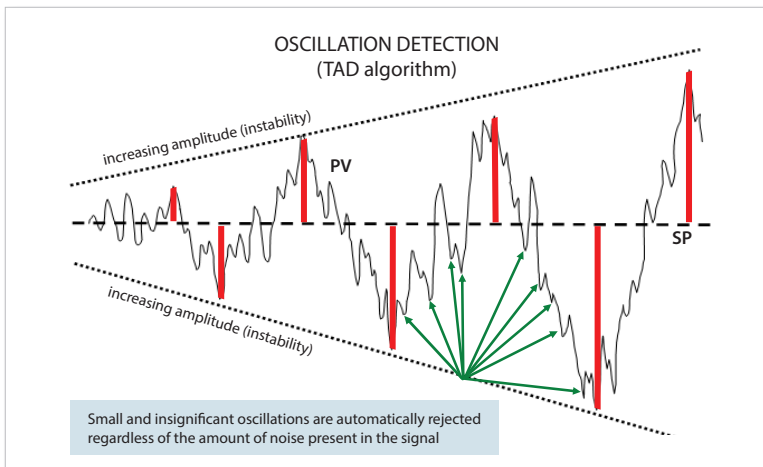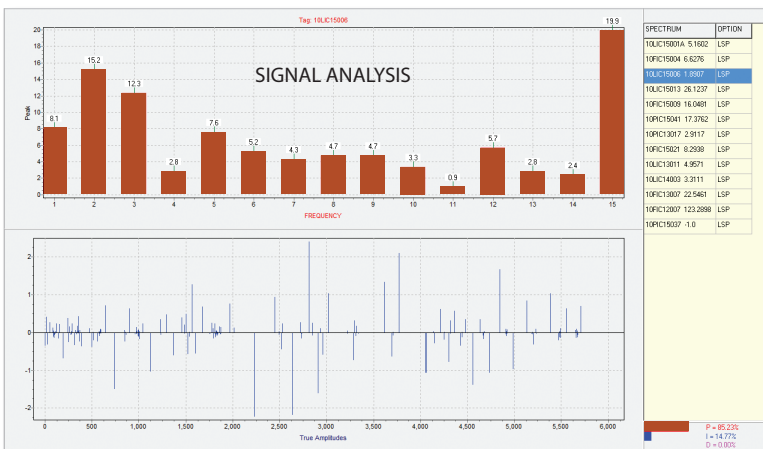# APROMON

PID Control Monitoring Software for Chemical Plants and Refineries

includes cascade/multivariable control loops

π PiControl Solutions

ERROR	ERROR SQUARED	ERROR DEVIATION	VARIANCE	STD. DEVIATION	CONTROL TIGHTNESS	IMBALANCE
CRIMP	UNSTABLE	HUNTING	SPECTRUM	MATCH	NOISE LEVEL	SATURATION OP
SATURATION PV	SPIKE PV	FROZEN PV	ROPE LENGTH	VACILLATION	PROPORTIONAL	INTEGRAL
CHEAT	PP	PPK	INTERVENE	ONSTREAM FACTOR	INUSE	GRADE

TAG	ERROR	CONTROL TIGHTNESS	ROPE LENGTH	ONSTREAM FACTOR	IMBALANCE	SPECTRUM	CRIMP
10FIC12007	0.7108	197.674	0.2174	100.0	1.0623	123.2898	0.0472
10FIC13007	0.0562	140.1007	0.0458	100.0	1.0357	22.5461	0.0
10FIC15004	0.0419	62.1559	0.0087	100.0	1.0568	6.6276	0.586
10FIC15009	0.2308	89.0679	0.2267	100.0	1.0045	16.0481	1.8968
10FIC15021	0.0718	53.3657	0.0204	100.0	1.0321	8.2938	0.002
10LIC13011	0.0702	36.7853	0.0427	100.0	1.0516	4.9571	0.0
10LIC14003	0.2177	35.2855	0.0697	100.0	1.0553	3.3111	0.0
10LIC15001A	0.1753	16.2472	0.0171	100.0	1.7433	5.1602	0.012
10LIC15006	0.5142	8.7901	0.0213	100.0	1.1392	1.8907	0.0
10LIC15013	1.2985	58.6981	0.3158	100.0	1.015	26.1237	0.0
10PIC13017	0.051	24.1208	0.0387	100.0	1.0524	2.9117	0.0
10PIC15037	-1	0.4166	0.0197	8.0889	60.9462	-1	0.0
10PIC15041	0.161	72.4458	0.2145	100.0	1.0364	17.3762	0.0

SIGNAL ANALYSIS

SPECTRUM	OPTION
10LIC15001A 5.1602	LSP
10FIC15004 6.6276	LSP
10LIC15006 1.8907	LSP
10LIC15013 26.1237	LSP
10FIC15009 16.0481	LSP
10FIC15041 17.3762	LSP
10PIC13017 2.9117	LSP
10FIC15021 8.2938	LSP
10LIC13011 4.9571	LSP
10LIC14003 3.3111	LSP
10FIC13007 22.5461	LSP
10FIC12007 123.2898	LSP
10PIC15037 -1.0	LSP

P = 85.23%
I = 14.77%
D = 0.00%

OSCILLATION DETECTION
(TAD algorithm)

increasing amplitude (instability)

PV

increasing amplitude (instability)

SP

Small and insignificant oscillations are automatically rejected regardless of the amount of noise present in the signal

On-line process **control**, **monitoring** and **diagnostics** is extremely important for optimal performance of processes and plants. Using modern tools for process control monitoring and diagnostics stable operation, energy savings and greater efficiency of the process can be achieved.

APROMON control monitoring software generates a report automatically, identifying PID control loop problems.

APROMON allows process control engineers to quickly focus on the loops deserving the most attention identifying measuring sensor, final control element and controller problems.

APROMON can be used when:

- Control loops have bad performance
- Control loops are oscillating
- Control valves are not working well or too fast
- There is a need for PID optimization
- Measuring instruments have signal problems
- Many other diagnostics (about 30 criteria!) important for the process engineers.

Benefits of using APROMON:

- Stabilize plant operation
- Early problem detection
- Optimal control loop performance
- Increase plant throughput and profit margin
- Improve plant reliability and safety
- Energy savings and greater efficiency

Revolutionary **True Amplitude Detection (TAD)** algorithm

The **TAD** algorithm is the most advanced and reliable oscillation detection software. It will trap oscillations only when they are large enough to cause problems. **TAD** never gets fooled by any level of noise, drift and complexity.

Tadpole helps to:

1. Eliminates oscillations present in the process
2. Push variables closer to operating constraints
3. Adaptively adjust PID tuning parameters
4. Increase plant reliability