

APROMON

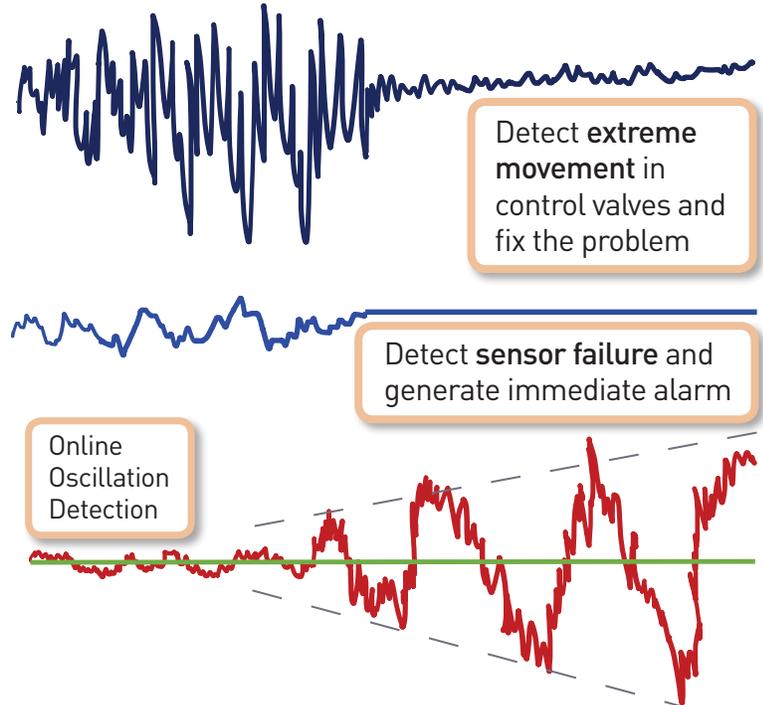
PID Control Loop Monitoring

 **PiControl**
Solutions

Monitors the control performance quality of all PID control and APC loops; helps to identify control problems, improve PID control quality and run the plant more efficiently thereby increasing plant profits.

Benefits of using APROMON:

- Monitor the performance of your plant 24/7.
- Improve your **plant's profitability**.
- Increase **process stability and safety** by identifying and prioritizing ill-tuned loops and malfunctioning actuators.
- Configurable to generate the **alerts and regular reports** that you desire. See how your plant's performance evolves.
- Reduce **raw material and energy consumption** by identifying and remedying oscillating loops.
- Much **faster to install and configure** than competitor products.
- Increase **efficiency and effectiveness** of process control engineers and technicians. APROMON helps them focus on what matters most.
- Benefit from **low total cost of ownership** of APROMON thanks to its ease of use.



APROMON calculates over 25 Control Criteria for every PID loop in the plant; see list below:

- | | |
|---------------------------|----------------------------------|
| • Integrated Error | • Frozen Signals |
| • Error Squared | • Intervention |
| • Control Error Deviation | • Rope Length |
| • Control Tightness | • Vacillation |
| • Imbalance | • Spike OP |
| • Skew | • Spike PV |
| • Unstable | • Crimp |
| • Hunting | • Onstream Factor |
| • Spectrum | • Operator Cheating |
| • Noise Level | • Output Saturation |
| • True Amplitude Display | • PV Saturation |
| • Variance | • PP, PPK (Statistical Criteria) |
| • Standard Deviation | • Multivariable Control Criteria |
| • Cascade PID criteria | |

APROMON has the best Online Oscillation Detection algorithm. It works amazingly well even amidst complex noise, drifts and disturbances. Use it to implement online alarms and **ADAPTIVE CONTROL** inside the DCS or PLC.

APROMON is a Control Loop Performance Monitoring Tool that is exceptionally fast to setup and easy to learn thanks to its intuitive user interface. It continuously monitors the performance of all types of primary and advanced control loops. It generates daily reports and also sends online alerts upon detecting control problems. It has a unique power to convert the performance of any type of controller into a single "grade", just like the grade given by a professor to his students. Works on very fast PID loops in compressors or very slow PID loops in distillation columns. An excellent tool for any industry.

**Extraordinary
High ROI**

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Monitor Your Plant's Performance with APROMON

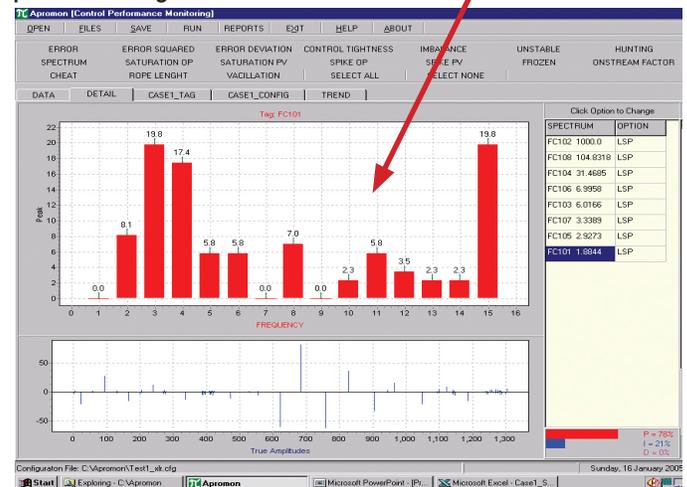


- Online Process Control Monitoring is a rising, new field. Plants can be run more efficiently with modern online control monitoring tools.
- As much as US \$300K to \$2 million/year recurring savings can be realized by modern control monitoring software tool like APROMON.
- APROMON PID Control Quality Monitoring software generates a report automatically everyday, identifying the worst PID control loops.
- APROMON allows process control engineers to quickly focus on the loops deserving the most attention. APROMON helps to quickly identify control problems and helps to restore the control quality of the affected control loops.
- With APROMON, you can increase plant throughput, push the plant closer to operating constraints, improve plant's profit margin, increase engineer/technician productivity, stabilize plant operation, improve plant reliability and safety.

**Simple User Interface!
Quick and Easy to Install (4 hours!)
Only 70 pages User Manual!**

Competitor products take 3-4 weeks to install, configure and use. Competitor software is complex with 1000s of pages of user manuals. In contrast, APROMON is most user-friendly and practical. Start seeing plant benefits in a week!

APROMON's Spectral Frequency Distribution Chart aids powerful diagnostics



Easy to use and intuitive Excel-based user-interface makes APROMON the easiest and most practical product.

#	FC101.PV	FC101.SP	FC101.OP	FC101.MODE	FC102.PV	FC102.SP	FC102.OP	FC102.MODE	FC103.PV	FC103.SP
1	1000.0	1000.0	1.0	2.0	225.0	225.0	50.0	2.0	55.0	
2	986.75104	1000.0	0.99997	2.0	222.18996	225.0	50.0	2.0	54.9484	
3	986.94177	1000.0	19.32387	2.0	227.36626	225.0	59.70716	2.0	55.13404	
4	986.84546	1000.0	18.70763	2.0	226.18039	225.0	56.10387	2.0	54.98048	
5	987.38257	1000.0	20.41508	2.0	222.19427	225.0	57.18324	2.0	56.01586	
6	1003.24017	1000.0	20.70848	2.0	227.91162	225.0	60.41942	2.0	57.36306	
7	1002.91473	1002.72729	18.06016	2.0	224.45988	225.0	56.99997	2.0	58.60745	
8	1001.21021	1002.72729	18.71524	2.0	223.27045	225.0	59.10889	2.0	59.52483	
9	997.97943	1005.2066	20.13614	2.0	222.31671	225.0	60.34787	2.0	60.40795	
10	988.00427	1005.2066	22.42847	2.0	222.52582	225.0	61.35731	2.0	61.20835	
11	1002.18817	1007.46067	22.98404	2.0	225.89637	225.0	61.50889	2.0	61.41864	
12	1003.22833	1007.46067	21.24706	2.0	224.46461	225.0	59.28848	2.0	61.8461	
13	1002.2442	1009.50958	21.18825	2.0	226.91054	225.0	60.5681	2.0	61.9514	
14	997.84287	1009.50958	22.18655	2.0	225.16226	225.0	58.97216	2.0	62.00843	
15	997.15308	1011.37238	25.0505	2.0	223.99631	225.0	60.49471	2.0	62.29981	
16	999.77661	1011.37238	26.05967	2.0	222.12411	225.0	61.92183	2.0	61.87087	
17	999.52112	1013.0658	25.19375	2.0	224.11911	225.0	63.31619	2.0	61.67618	
18	1001.04034	1013.0658	25.87186	2.0	225.49324	225.0	62.11917	2.0	61.7432	
19	999.05457	1014.60629	25.57645	2.0	224.81393	225.0	61.36362	2.0	61.40395	

Short Earn-Back period: Delivers quantifiable benefits with paybacks ranging from few weeks to a year. \$200K to \$2 million/year recurring savings can be realized by Control Loop Performance Monitoring (CLPM) tools like APROMON.

Main functions of APROMON:

- Which loops are not controlling well?
- Which loops are oscillating?
- Which loops have matching frequencies?
- Which control valves are not working well?
- Which control valves are moving excessively?
- Which loops need proportional adjustment?
- Which loops need integral adjustment?
- Which loops need derivative adjustment?
- Which loops need filter adjustment?
- What is onstream factor of the loops?
- Which loops do the operators intervene most?
- Which loops have instrument signal problems?
- And many other diagnostic assistance tips for the control room engineer and technician.

Works with any DCS/PLC using OPC or Excel!

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