Next generation *model-less* advanced control & optimization technology

PRESS RELEASE

APC Performance, LLC, earns patent for an inherently adaptive process control algorithm and a model-less multivariable control method.

Red Lodge, Montana, February 3, 2017: APC Performance, LLC, today announced that its patent application for Rate-Predictive Control (RPC™), industry's only inherently adaptive control algorithm, and for Model-less Multivariable Control (XMC™), industry's only model-less multivariable control solution, has been granted by the United States Patent and Trademark Office.

Rate-Predictive Control (RPC™) is a new *model-less and inherently adaptive* (or "naturally self-tuning") process control algorithm. It deploys as a re-usable distributed control system (DCS) software function block, or it can be directly built into commercial control system products as one of the user-selectable control algorithm options in these devices. RPC™ provides a more reliable alternative to industry standard "PID" control in many applications. XMC™, the model-less multivariable control technology by APC Performance, LLC, embeds RPC™ as its internal control method.

RPC™ and XMC™ represent potentially the most important and far-reaching breakthroughs in industrial process control technology in decades, because they solve fundamental limitations that have historically undermined process control performance in the past, including:

- *Model-less* – RPC™ does not depend on detailed process models for either single-loop or multivariable process control, thereby eliminating over 90% of plant testing and model-related activities, costs and maintenance.

- *Inherently Adaptive* – RPC™ is "naturally self-tuning" with regard to changes in process gain, which is especially important in an industry that has struggled to find a reliable self-tuning controller in the past, and where dynamically changing process gains have been a particular problem of model-based multivariable control.

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All process industries, such as refining, chemicals and power generation, rely heavily on process control technology for safe, stable and reliable operation. As a result of RPC™ and XMC™, all process industry sectors stand to realize large gains in overall real-time process control and optimization performance. End users in trial applications have described their experience as follows:

> "XMC™ rate predictive control is amazingly agile and stable without the complexity of models. Deployment is easy, and operator acceptance has been positive. Also the maintenance requirements are minimal compared to PID or MPC."
> - *Gregory W. Hampton, P. E., APC Engineer*
>   *CITGO Petroleum Corporation, Lake Charles, Louisiana*

> "Our hydrotreater XMC™ application provides improved sulfur control, increased product value through optimized aromatic saturation, and reduced operator loading, which frees up time for other console tasks and priorities. The application was easy to deploy and has run essentially maintenance free for nearly two years."
> - *Process Automation Supervisor at a major US oil refinery*

RPC™ has the potential to streamline advanced control practice and reduce costs, while increasing process automation performance and agility. "The vision for model-less process control technology", according to Allan Kern, Owner and President of APC Performance, LLC, "is to revitalize advanced control at the plant level and restore it to an in-house core-competency, where it can be more instrumental and play a more agile role in continuous operational improvement and day-to-day problem solving."

> "Much of the traditional large matrix multivariable or model-based control technology has been difficult to use and support, resulting in poor operator acceptance and eventual degradation of the plant models, which impacts process performance. It appears that APC Performance has designed XMC™ to target the optimization gap between traditional advanced regulatory control and the large matrix model-based controllers to make the solution simpler to implement, support, and maintain and much easier for the operator to use, which should result in better acceptance."
> - *Peter Reynolds, Industry Analyst, ARC Advisory Group*

Additional information is available:
- Online at APC Performance, LLC, or Lin & Associates, Inc., APC's system integration partner
- Email ask@APC*performance*.com
- Meet Mr. Kern at the ARC Industry Forum 2017 in Orlando, Florida, Feb. 6-9
- Attend the model-less process control technology webcast on HydrocarbonProcessing.com, Feb. 22