

# **ADVANCED SOLUTIONS**



# **Advanced Process Solutions**

Our experience covers the full range of modern control system technology and services including alarm management, operator interface design, multi-purpose dynamic simulation, control room design, and operator workload assessment.

By leveraging this knowledge, we aim to improve the economic position of our customers through the application of effective process control. By providing experienced expert services and working collaboratively with our customers, we can deliver sustainable value to local customers for years to come.

- Process Control Optimization
- Opportunity Mapping Studies
- Advanced Control (APC) Services and Programs
- Alarm Management
- Operator Training Systems (OTS) and Dynamic Simulation
- Process Safety Solutions HIPPS, IEC61511
- Sustaining Services and Remote Performance Monitoring

#### **APC Opportunity Assessment**



ESTIMATED COST

- Quickly uncover low capital, high payback investment opportunities at your facility.
- APC Opportunity Report that results in 5 to 15 opportunities with <1 year payback</li>

## SpartanPRO™ Applications

Our library of SpartanPRO™ Power & Utilities industry-ready solutions has been developed over the past 20 years while working on North American Power & Utilities applications.

These site-tested solutions tackle the toughest and most economically significant applications in the power & utilities industry and can help bring operational performance in your plant to the next level.

### • SpartanPRO™ Steam Generator

Improve steam generation efficiency and reduce GHG emissions by up to 5% across all unit types. This comprehensive solution covers fuel train management, feedwater load allocation, drum level control, combustion efficiency control, automated startup and shutdown, and steam quality optimization.

### • SpartanPRO™ Steam Header

 Stabilize steam pressure across multiple headers and prevent boiler trips through effective coordination of steam generators, turbines, transfer lines, vents, and steam sinks.

#### • SpartanPRO™ Energy Management

 Increase profitability from power generation by up to 5% with real-time optimization of boiler fuel allocation, turbine management, and power market pricing.



# Data Analytics & AI Solutions

Our experience in both IT and OT domains, as well as our understanding of applied artificial intelligence and industrial process operations, allow us to offer unparalleled cutting-edge solutions designed to bring your industrial process operations to the next level.

With a focus on safety, sustainability, cost, and throughput, our solutions leverage the latest advances in applied artificial intelligence to help you overcome your most pressing operational challenges.

#### Critical Defeat

 Real time bypass monitoring and risk assessment to reduce the likelihood and severity of accidents

#### • Energy Management Information System

 Monitor your resource Consumption and get on top of your operations

### Panel Manager

 Monitor and analyze alarms for a healthier, more productive plant

#### ProTrack

 Monitor loop health across the plant or across the world. Dig into utilization, device, and tuning graphs to optimize every loop.



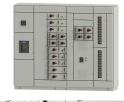


## PowerVue™ Motor Control Centers

Spartan Control's PowerVue™ Motor Control Centers (MCC) are designed to accelerate project timelines while reducing installation and commissioning costs associated with low voltage MCC projects.

Our innovative assembly process provides flexibility to project managers, engineers, and electricians to ensure you get what you want when you want it. Our focus is providing local inventory, local assembly, and local service for your electrical product and solution requirements.

- MCC's, Switchboards & Custom Electrical capabilities
- Low Voltage Motor Control Centers (up to 600V)
- Low Voltage Switchboards (up to 600V)
- Integrated DeltaV<sup>™</sup> and other non-traditional panels to reduce building footprint and commissioning time
- Alternate form factor and increased section density to reduce electrical building footprint
- Shortest lead times in the market (~5-7 weeks) and ability to absorb last minute changes





8AM-5PM M-F AND EMERGENCY 24/7 SUPPPORT CALL TOLL FREE (877) 827-8131

# **Combustion Solutions**

Our focus is providing industry expertise and solutions for your combustion projects. With over 100 years of combined experience, our combustions solutions are designed to improve safety and efficiency. From commercial off the shelf solutions to custom engineered integrated safety solutions we will work with you to reduce cost, complexity and timelines.

- Environmental Solutions
  - Process optimization tied to climate change initiatives
- CEMS
- Advanced Combustion Control Applications
- Fuel Trains, BMS and Burner systems
- Packaged combustion management solutions
- OTSG/HRSG
  - Boilers Watertube & Firetube







BOILERS FOR PEOPLE WHO KNOW AND CARE ®

## **Caltrol Locations**



## MANUFACTURED SOLUTIONS



### **HYDROGEN BLENDING**



As the world looks to decarbonize its energy sources, hydrogen has emerged as a promising new energy source to help us reduce emissions. Emissions associated with burning fossil fuels can be reduced by injecting hydrogen directly into a natural gas distribution system, displacing existing fossil fuel consumption.

Our turnkey hydrogen blending solution gives suppliers the confidence to accurately blend hydrogen into their existing natural gas pipeline network with minimal effort or expense.

- · Blending hydrogen into flowing gas streams
- Concentration verified by an online analyzer
- · Compensates automatically for accurate blending

### RNG-RECEIPT

By capturing methane emissions from organic waste sources such as landfills, wastewater treatment plants, and agricultural waste, RNG can provide a reliable and renewable source of natural gas. This can displace traditional natural gas consumption and help reduce greenhouse gas emissions, while also providing economic benefits and promoting waste reduction.

Our turnkey RNG–Receipt solutions ensure that renewable natural gas generated from a variety of feed stock sources meets the quality specifications required for distribution.

- · Intakes renewable natural gas
- Measures, analyzes and odorizes
- · Sends to distribution
- · Returns gas if out of spec



Expert Services, Integrated Solutions and Applied Technology

**EMISSIONS** 

**ELECTRIFICATION** 

**ENERGY USE** 

EFFICIENT OPERATIONS

ENTERPRISE DATA

24/7 SERVICE (877) 827-8131 WWW.CALTROL.COM

### **ODORIZATION**

Gas power plants use extremely large amounts of high-pressure natural gas in their operation, sourced directly from unodorized high-pressure natural gas transmission lines. Gas must be odorized before it can be safely used, and with the high flow rates in these applications and costs of odorant, any over-odorization can lead to significant impacts on overall profitability.



Our turnkey Natural Gas Odourization Solutions deliver the most sophisticated industrial mercaptan for natural gas & propane solutions, allowing our customers to smell even the smallest of leaks, before they cause an incident.

- Continuous modulating injection system suitable for high pressure, higher volume applications (MMSCFH range)
- Closed system
- Precise mass metering with Coriolis flow meter
- · Flow computer/controller with injection data history and alarm history
- Options include remote communications/alarming, DCS integration

## **CONTINUOUS EMISSIONS MONITORING (CEMS)**

Reliable, stable analytical technologies for continuous emissions monitoring can ensure compliance and improve overall performance and insight into an operation.



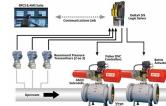
- · Low maintenance and low lifetime cost of operation
- Continuous health diagnostic reporting
- Intuitive, simple front panel user interface allows complete access to instrument



# HIGH INTEGRITY PRESSURE PROTECTION SYSTEM (HIPPS)

High Integrity Pressure Protection Systems are designed to enhance or replace over pressure protection traditionally addressed with mechanical relief and flare systems.

- Cabinet Design, Fabrication and Configuration
- SIL Certified Automation Components
- SIL Verification Calculations
- Partial Stroke Test Calibration and Training









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