CT223 – Industrial HVAC Solutions
Agenda

1. Introduction / Key Message
2. HVAC is a critical part of the process
3. Seamless integration of HVAC and Process System
4. A new approach to industrial HVAC
5. Key Takeaways / Summary and Questions
Introduction

- Rick Melia, P.Eng – General Manager
  - Scott Springfield MFG Inc
    - 29 Years HVAC Equipment Design
Key Message

- HVAC is a critical part of the Process System
- Seamless integration of industrial HVAC with plant wide process control systems will maximize plant safety and reliability.
- A New approach to Industrial HVAC
HVAC is a critical part of the process

- On an industrial project, HVAC is usually the last piece of equipment to be considered, however on completion of the project, it is usually the first to be discussed if it is not operating as desired.
  - Start-up delays resulting from incompatibility between plant and HVAC control systems
  - High ongoing maintenance costs associated with disposable equipment
  - Increased costs due to multiple vendors & platforms

Should the HVAC system fail the process will come to a halt
HVAC is a critical part of the process

- Question: Often Electrical Controls and Instrumentation Engineers do not consider HVAC controls to be part of the process, should you?
  - By integrating these systems, the following benefits can be realized:
    - Enhanced Safety
    - Reduced commissioning time
    - Increased reliability, reduced downtime
    - Standardization (Inventory reduction / Training)
    - Common communication platform
    - Lower maintenance costs (Planned, predictive maintenance)
    - Reduced cost for Risk Mitigation
HVAC is a critical part of the process

BMS Control Panel
Question: Should your HVAC system be tied into your Plant wide safety system?

- How the HVAC system responds to a Fire or Gas event may be critical to the performance of your overall plant wide safety system.
- Does the SIL performance of your HVAC system feed into your F&G SIL calculation?
- Does the traditional Hardwired Safety System limit the information provided to operations.
- Can you think of anywhere in your plant where the performance of the HVAC system is not only maintaining operation but also safeguarding the people or environment?
HVAC is a critical part of the process system

- Moving to an integrated HVAC solution offers:-
  - Increased functionality
  - Increased reliability
  - Lower maintenance costs
  - Increased safety
  - Reduced installation cost in classified locations
To date in the presentation we have established that in place of a stand alone proprietary, un-rated HVAC controller, you may want to consider a non proprietary, seamlessly integrated, process/safety system as your HVAC control system of choice.
Seamless integration of industrial HVAC with plant wide process control

Traditional Architecture

Supervisory Control

Process Control

Building Management Control

Equipment Control

- Control Network
- Remote I/O Network
- BMS Network
- Hard Wired Signals
- Hard Wired Signals

Application Servers
Domain Controller
Work Stations
Printers

DCS Controller

Remote I/O System

SIL 2 Controller

Fire & Gas System

Field Devices

Sensors
Seamless integration of industrial HVAC with plant wide process control

- Limited communication
  - Constrained due to cost of hardwiring

- Higher cost
  - Increased Wiring, installation, programming, integration, on site troubleshooting required

- Lack of flexibility
  - Limit to equipment capabilities
  - No Future proofing of plant – changes / expansion etc are expensive and require extensive re-design / engineering work

- Multiple Platforms
  - Increased inventory / training / support
  - Integration / start up issues
Seamless integration of industrial HVAC with plant wide process control

Proposed Solution

Supervisory Control

Process Control

Building Management Control

Equipment Control

Application Servers
Domain Controller
Work Stations
Printers

DCS Controller

Ethernet Switch

Local HDMI

SIL 2 BMS Controller

Fire & Gas System

Sensors

Field Devices

Control Network
BMS Network
Building Automation Network
Hard Wired Signals
Seamless integration of industrial HVAC with plant wide process control

- Unlimited communication
  - Diagnostics, access to information not currently available

- Standardized single platform
  - Reduced inventory / training

- Lower Cost
  - Wiring, installation, programming, integration, remote troubleshooting

- Support
  - Availability of replacement parts, access to resources

- Flexibility
  - Designed to suit specific application
  - Future proofing your plant
A new approach to Industrial HVAC

- In a time sensitive, complex industrial project utilizing a single vendor with a single contract for all of your HVAC requirements will provide the most efficient, cost effective solution.

- Our approach is based on the integration of three critical elements:-
  - HVAC Engineering design
  - Equipment design and construction
  - Controls design and integration
A new approach to Industrial HVAC

- Realizing that HVAC is a critical part of the process is the first step to better solution
  - Early incorporation of HVAC design team
  - Early identification of HVAC requirements
    - Controls & Interfacing
    - Equipment performance
    - System communication
    - Process monitoring
    - Commissioning requirements

System responsibility for HVAC lying with one supplier
Full Turn key solution
Key Takeaways and Summary

- HVAC is a critical part of the Process System
- Seamless integration of industrial HVAC with plant wide process control systems will maximize plant safety and reliability.
- A new approach to Industrial HVAC
Question Period
Rick Melia, P.Eng

General Manager - Scott Springfield MFG Inc.

rmelia@scottspringfield.com