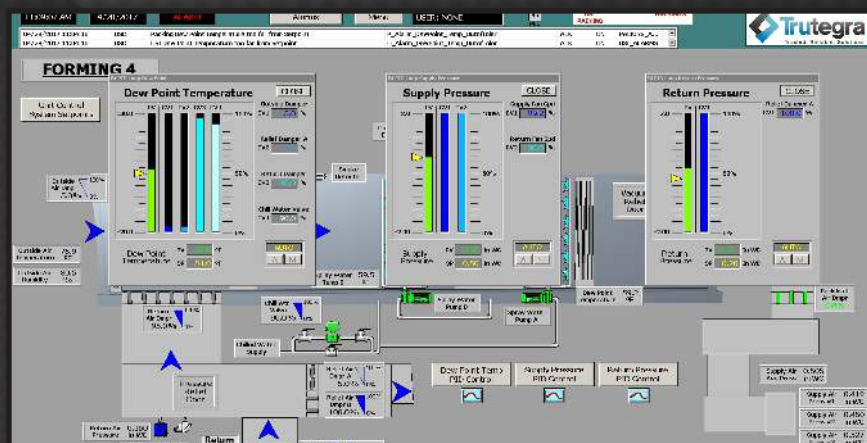
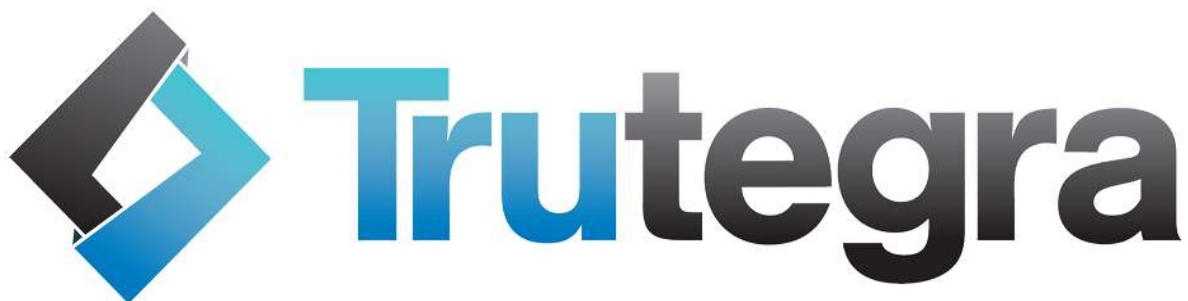




## PLC-Based HVAC System Upgrade Case Study



Air Washer HMI screen

**Trutegra** modernized the controls for several HVAC systems in a large manufacturing facility as part of a major plant upgrade. The air quality in the manufacturing areas of the plant is maintained by six large air washers. The air washers were originally controlled by aging pneumatic controls and several proprietary “black box” controllers. Trutegra selected a single off-the-shelf PLC controller, AC Variable Frequency Drives (VFDs), and HMI software package providing a standard, accessible platform that is familiar to plant maintenance personnel. The new system is easily maintained and serviced eliminating expensive service contracts with traditional HVAC controls suppliers.

# PLC-Based HVAC System Upgrade

In addition to climate control for personnel, key parameters such as temperature, humidity, air flow, and pressure must be precisely controlled in the manufacturing area, as they directly affect the performance of process equipment and are critical to product quality and plant performance. Monitoring and control of the system is via a standard SCADA/HMI application. The HMI application provides supervisory control of key system setpoints and parameters, system alarming and event logging, all via a graphical representation of the system that allows the operators to easily and intuitively monitor system performance.

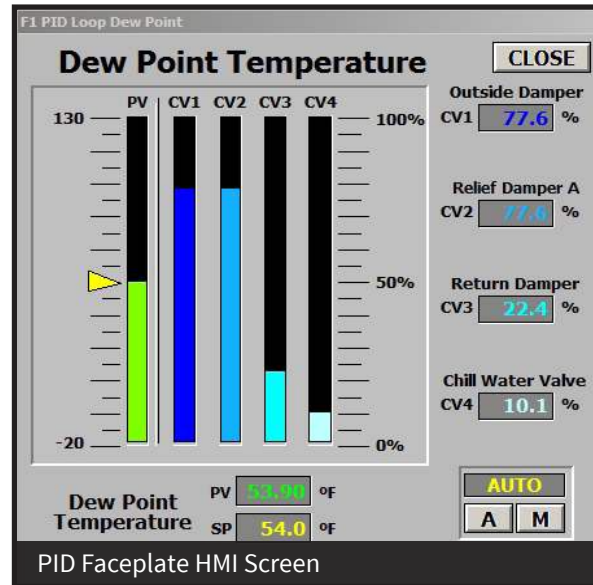


All relevant data points for each area of the system have been configured in the plant's Historian server and are displayed in many pre-configured, contextualized historical trends which are easily accessed throughout the HMI application. The trends (📈) are pre-configured to display the history of tags relevant to the specific section of the system where the trend appears and for the range and time period most commonly needed, with the added capability to customize the trend characteristics for any special need. In addition to the pre-configured trends, plant personnel can create ad hoc trends and queries using the Historian Client tools and the tags configured in the Historian database.

Precise control of key system variables (dew point temperature, room temperature, supply air pressure, return air pressure, etc.) is achieved with PID loop control in the PLC. Most control loops act on multiple pieces of equipment in sequence to control a single process variable. Each control loop can be managed from a PID Faceplate screen on the HMI, allowing the operator to adjust the setpoints and, if needed, place the control loop into manual mode (with the proper access level) to manually adjust the individual control outputs.

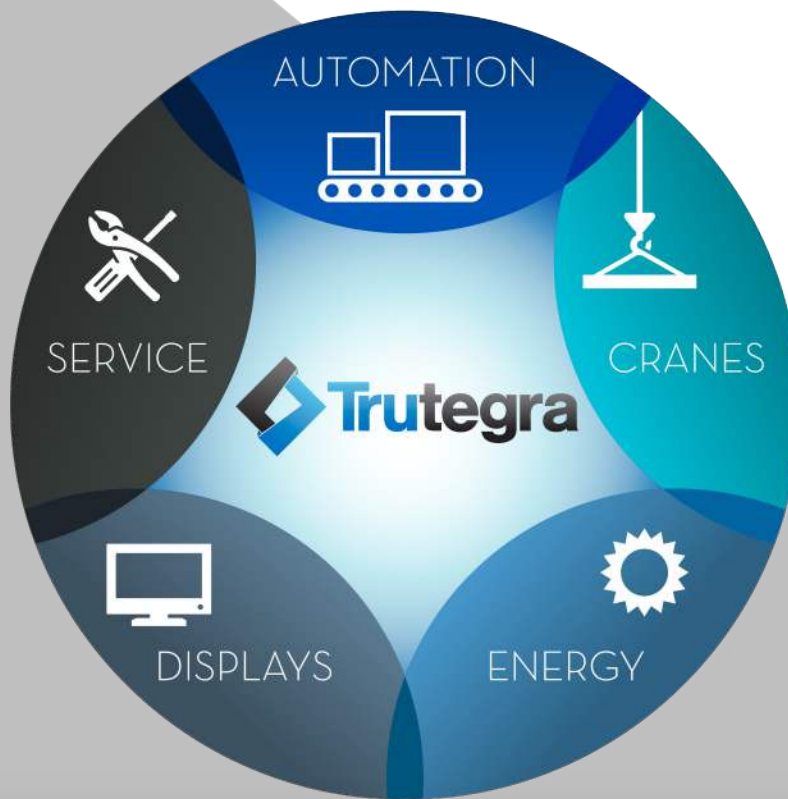


# PLC-Based HVAC System Upgrade



The PLC features two separate Ethernet ports, allowing the controller to communicate separately to the plant's process control network (for interface with the HMI and Historian database) and a local control network (for interface with the variable-speed drives in the system). A web client was also provided to allow engineering and management secure access to the HMI for the system. This can be viewed anywhere within the plant or remotely using a VPN.

By designing a PLC-based Plant HVAC control system, Trutegra was able to deliver a solution that outperforms other packaged systems in terms of annual maintenance contract costs and ease of use. Plant operations personnel have reported improved performance of the HVAC controls in the process areas and are benefiting from better system awareness and operability. Maintenance personnel are able to comfortably understand and support the system, resulting in increased plant performance and reduced cost of ownership.



Trusted. Reliable. Solutions.

# Contact us today!

Trutegra can provide your custom automation solutions. Whether looking to build a system from scratch, automate an existing process or retrofit with new technology, Trutegra brings years of industry experience and a broad base of practical knowledge to the challenge. Our seasoned engineers and professional approach will help you maximize success with minimal cost and risk. Trutegra wants to be your trusted, reliable partner.

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