

GMP Compliant User Extendable Environment Monitoring System

Sistel Control engineer's team developed an application that can be extended in number of measuring points by SCADA users. The user configures few properties of the new measuring point and it is deployed on runtime in the system. The new point is visible from the SCADA application and it has the same functionalities of other points. User can calibrate the sensors, fix alarm limits and extract reports of this new point, all without any intervention of a System Integrator.

Company Overview

La Vall de Bianya – Girona (SPAIN)

Located on the picturesque countryside of La Vall de Bianya, Fort Dodge Animal Health is a leading manufacturer and distributor of animal health care. Fort Dodge Veterinaria, S.A. serves Europe and international markets, distributing products in more than 100 countries.

User requirements

Fort Dodge was looking for a system that could provide information from sensors located at different points of the plant. They had a specific number of sensors and they wanted to be able to enlarge this number without a system integrator. They needed an entirely reliable system to keep the historical data, alarms and events for GMP compliance.

They required a system capable of connecting various types of sensors. Among the most common were temperature, humidity and CO2 sensors. Each sensor connected to the system had to be calibrated by the software and had to have four alarm limits that could be delayed.

Configurable solution

Sistel Control's engineers installed a system that has a Web environment and allows, by IAS GRAccess, users to deploy new measurement points with different configurations and locations. The measurement point is an object created in IAS. This object has all the functionalities needed for a sensor. The object is deployed in runtime for every sensor connected and the performance is inherited from the original library, which include Archestra Graphics.

The IAS galaxy structure is based on the company's departments and measuring points are deployed where the user decides.

The signal from any I/O remote device can be deployed in any group allowing the connection of sensors in any cabinet; it's no need to match the department where user wants to deploy the measuring point with the cabinet allocated at that department.

When a new measurement point is deployed in the system, the user can configure the sensor range, the I/O remote device and the channel where it is connected and the measuring units, allowing the connection of different type of sensors.

The identifier given to the measurement point of measurement is unique and cannot be repeated throughout the life of the system, fixing it in a Data Base and allowing all data to reference that identifier. The identifier, the group, the range, the measuring units, the remote device and channel cannot be modified, allowing traceability of alarms and events and historical trends and meeting the strict regulations in pharmaceutical industry.

Architecture

IAS architecture include an Application Server to run the system, an InSQL Server to save data and a Terminal Server with InTouch application to facilitate the user the SCADA connection form different points of the plant. IAS Servers run on a Virtual Machine Servers Platform taking advantages of the features that this platform provides.

The system includes seven I/O remote devices ET200S Siemens with profinet protocol and three servers for IAS architecture. I/O remote devices are designated to collect field data along the entire plant and manage it to make them accessible form IAS system. Every remote device has a Ethernet point for connecting a Laptop and perform system diagnostics from the cabinet in the technical area of the factory.

Figure 1. Architecture

Different functionalities

System is implemented with strict rules for security levels as it is required for pharmaceutical industry. There are two types of system security: Geographical access, depending on the department the user can only see and act on the points that belong to his the department, and usual access level, to permit only some actions in the system.

The object "Measurement Point" controls its own alarm levels. It can individually be enabled or disabled and individually delayed. All object alarms can be disabled at once, allowing maintenance work on the sensor.

The measurement points can be calibrated by software, being able to configure offset and span for the sensors connected.

Figure2.SCADAScreenshots

Figure3. Measurement points functionalities screen

Figure4. Measurement points calibration screen

Easy visualization

If the user has geographical restrictions, the points shown on the screen are the ones that belong to his geographical group. If user has no geographical restrictions, can choose the department he want to see or can visualize the points that are on alarm, on calibration, on alarm disabled or all the points of the system.

Benefits

Compliance with Federal Drug Administration 21 CFR Part 11 rules.

System's Administrator can download new measuring points in the system without requiring a systems integrator.

Measuring points distributed on the Model Plant make the data search of history values, alarms and events easier.

Faster system validation process

Virtual Machine Servers architecture decrease initial servers cost and have low power consumption and maintenance, thanks to running on virtual environment.

Fast diagnostic on any I/O device system or channel failure due to the architecture diagnostic screens.