

REACTOR AUTOMATION SYSTEM

Process Overview

In **chemical/pharmaceutical industry**, the reactors are the **vital equipment** which ensures the **achieving of desired product**. Reactors ensure that the reaction proceeds with the **highest efficiency** towards the desired output product, producing the highest yield of product while requiring the **least amount of resource** to operate. Reactor operating expenses include **energy input, energy removal, raw material costs, labor**, etc. Energy changes can come in the form of heating or cooling, pumping to increase pressure, agitation, etc. The use of **batch reactors** is most suitable when **switching from one process or product to another**. The various processes like **Hydrogenation, Halogenation, Grignard Reactions, Crystallization, Distillation etc.**, are carried in contained operation. The chemical reaction involves **high degree of risks posing to operator, process & environment**.

Need For Automation

Chemical reactions are the **critical process** in the pharmaceutical industry in this process, various levels of risks are involved in the process demanding the process and parameters **monitoring/ controlling**. The aim of automation is handle the required operations in effective pattern to move towards -

- High productivity
- Less Operational Cost
- In focus to Personnel Safety & Plant Safety
- Adherence to Regulatory Needs
- Guidance of Quality Systems

The efficient system needs **stringent process monitoring & controlling** involves Temperature, Utility, Pressure, Agitator, Addition monitoring etc.

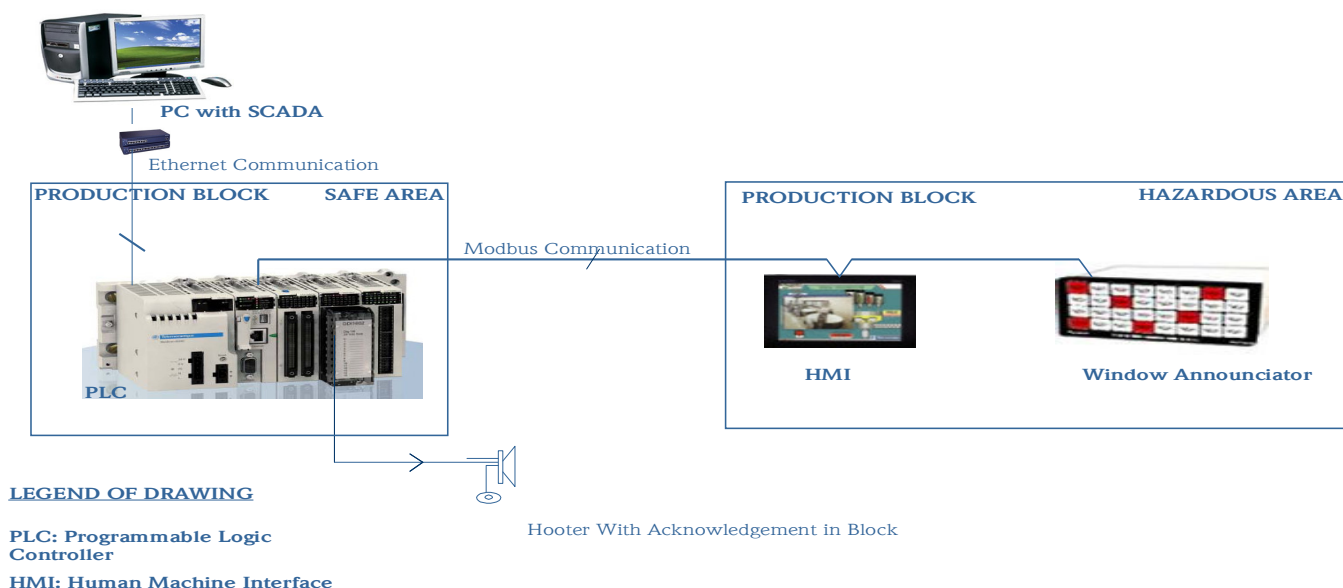
System Components Control System (Software- Hardware) HMI, SCADA

A **control system** with Open architecture design provides complete flexibility, high performance & ease of operation to the end user. The high-performance processor is considered which is capable of multi-tasking, best memory management & high reliable. **Remote I/O modules** for far spread blocks, **HMI's** at various production blocks for ease of operation. Remote process monitoring is performed by **SCADA** and various management information reports.

The system uses advanced software tools and components to build the necessary logic for better process controlling and process. The software includes features like Graphics, Trending, History and reports on customized formats.

An **internal FAT** will be conducted on the Panel Engineered & simulation test will be conducted at our in-house to analysis right logic & controlling developed in the system to ensure stringent control.

System Architecture



System Components Field Instruments (Sensors, Transmitters, Control Elements)

The better controlling needs effective sensors to read the process, transmitters to send the read parameters to control system, better logic to address and best control element to execute. The hooters & annunciators, alarms on process deviation. The precise controlling enhances the accuracy of the system. The performance of the system is dependant on the Instruments.

The field instruments used in the projects is from **POLMON manufactured** instruments or **from the reputed manufactures**. The instruments used are **tested at our in-house** and sent to end-user after checking to ensure product quality.

System Benefits

- Improves batch accuracy, Reduced batch failure
- Ensures process safety
- Stable process maintenance during the batch period
- Nullifies utility cross-contamination and minimizes corrosion etc.,
- Greatly reduces manual interventions
- Decreases the batch time and achieves the desired quality product.
- Manages Operational Cost
- Immediate operator attention on parameter deviation
- Achieving Regulatory Requirements

More Information
For more information on POLMON solutions, contact your POLMON account manager

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