

Determining the Best Controller for Your Small System



When choosing the type of control system for a particular application, there are many considerations that influence the decision. Remember that a DCS is designed for process control and a PLC is designed for machine or motion control. While either of these systems can be applied in the other domain, this can result in a loss of operational suitability. This is most often attempted with small processes where the loss of benefits is less visible.

The checklists below are meant as a guide in choosing the right system for the job. Each section lists the traits of the type of system and those areas where it typically performs the best. The word “application” below indicates the area of the plant where the automation platform will be applied. For example, a production line consisting of a premixer, reactor, and storage tanks or a packaging line consisting of filling, capping, labeling and boxing.

DCS

- Deterministic control is important (ensures that logic is executed in a particular order at the same time, every time)
- Continuous control is required (typically PID algorithms)
- The application will be changing frequently (several times a year or more – adding new feed lines, tanks, etc)
- If a batch application, the recipes and/or procedures will be changing (several times a year or more – adding new materials, changing formula parameters, changing order of steps)
- Operators of the system will have responsibility over a large scope of the plant, often times all equipment required to make the product
- The application has events that occur even if control is stopped (reaction, heating, mixing, for example)
- The system must be integrated with other applications and/or systems
- The application cannot tolerate any time delays or you will have a safety, environmental or product impact
- Loss of operational view during production is unacceptable
- You anticipate having multiple controllers that need to “talk” to each other in a peer-to-peer fashion (sharing a lot of data throughout the application)
- You need a highly available production system (controller, HMI, server, network, etc)

Example applications: *small to large batching processes (paint, PVC, dairy), water treatment, tank farms, etc*

PLC

- High speed processing (faster than 1msec)
- 90%+ discrete application (digital inputs/outputs)
- Your application is predominantly machine/motion control
- The application will not change frequently
- Your application can be represented easily by electrical relays, thus lending itself to ladder logic programming
- You need to control single pieces of equipment or single workstations, that are loosely integrated at a higher level
- Operators of the application have responsibility over a piece of equipment only
- You anticipate that the controllers for various pieces of equipment have minimal communication between them, and the communication won’t change much
- You don’t have a problem stopping an entire controller to make a change to the configuration – adding I/O, changing a control strategy, etc
- Your application has many areas, separated by distance, that each require only a small amount of I/O (<100)

Example applications: *cement, metals and mining, automotive, packaging, pipelines, well-heads, etc.*

Experion LS: The Perfect Balance

Experion LS offers the power and reliability of a distributed control system (DCS) in a small and flexible solution, ideal for batch and sequence-oriented manufacturers.

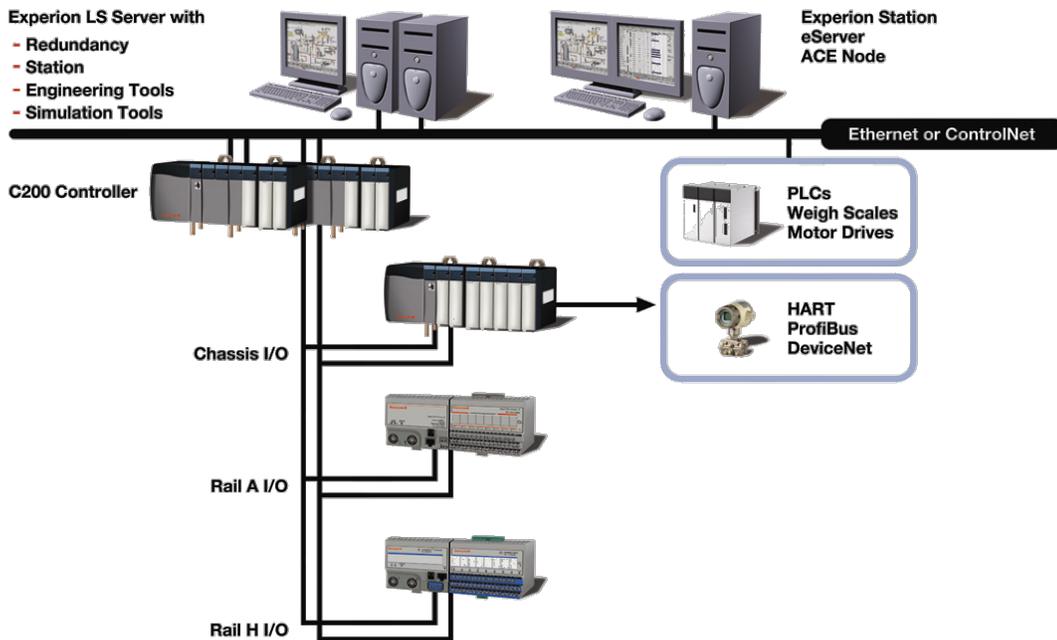
Experion LS requires less engineering effort to configure and is easier to maintain than a PLC or large DCS, helping plants save up to \$20,000 per year in support per system. With out-of-the-box functionality and flexibility, it requires less implementation cost and less ongoing maintenance than either systems are optimized for very large operations or the smaller typical PLC-based system.

Experion LS is the perfect flexible platform for small sites. Any size installation has access to a robust historian, controller-based batch sequencing, advanced control, change control for validated sites, and reporting capabilities.

The solution can scale from one PC and one controller to include multiple operator stations, redundancy, and batch management. In addition, the system provides reliable peer-to-peer communication with third party devices and drives, such as PLCs, weigh scales and motor drives, integration of SCADA data, and multiple I/O bus options.

Experion LS offers a single automation solution that covers both your continuous processing needs as well as batch control. With simple, yet powerful control algorithms neatly packaged into configurable function blocks and pre-built operator displays, monitoring and troubleshooting your process becomes easy for operators and maintenance personnel.

These features contribute to faster engineering, increased uptime and lower life cycle costs, while fully empowering your plant staff. Experion LS gets you to production faster and keeps you there



More Information

For more information on Experion LS, visit www.honeywell.com/ps/experionls.

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