



BATCH PROCESSING FOR THE CEMENT INDUSTRY

XL Automation's XLBatchMix cement batch control system is an innovative leader, combining state-of-the-art control components and visualization. XL BatchMix control panels contain Allen-Bradley CompactLogix programmable controllers, representing the latest technology from Rockwell Automation. A PC-based "XL BatchReports" HMI provides a user friendly but extremely advanced operator interface, with animated graphics, advanced reporting, alarming, data logging, and recipe control. An Allen-Bradley PanelView operator interface on the control panel provides backup redundancy to the HMI and allows the operator to continue scheduling batches in the event of PC maintenance or loss. Up to four PCs can simultaneously operate the XLBatchReports HMI software, sharing the same database and recipe system, pro-

viding convenience for the operator, maintenance technician, and management. For instance, a PC located in a scheduling supervisor's office might be used to maintain and download production schedules for the week. A second PC in the plant manager's office can be used to modify and create recipes and print reports, and a third PC in the operator control room provides immediate redundancy for the main batch computer in the control panel.

A single XL BatchReports database utilizing Microsoft SQL Server can support up to 99

XL Automation introduces the new standard for Dry and Wet Mix Cement batch processing.

concurrent XL BatchMix Control Systems spanning multiple plant locations.

In summary, XL Automation's batch processing solution raises the bar in cement batch processing solutions, and at an affordable price.



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Highlights:

- Aggregate/ Cement feed and jog rates are constantly "learned" to obtain optimum accuracy.
- System records manually added ingredients
- PanelView interface operates panel if HMI PC is unavailable.
- Remote access to system by XL Automation personnel shortens downtime and feature upgrades.

CUSTOMIZED FOR YOUR APPLICATION

The XL BatchMix and XL BatchReports control system and supervisory HMI was originally designed with total modularity in mind, and is customized for the specific operational requirements and field equipment for your plant. XL Automa-

tion can create 3D solid models of your equipment for your on-screen graphic animations. We can also assist in plant mechanical layouts and electrical design and schematics. With a well-rounded staff of mechanical and electrical engineers,

certified electrician, database expert, and network specialists, we will prove to be of great value in assisting your team.

XL BatchReports Supervisor Overview

Integrated into the control system is XL BatchReports, a custom PC-based data operator interface, data collection, and report generation system. The PC is located in the control panel and communicates to the PLC via Ethernet/IP.

Routine monitoring and system control is handled through XL BatchReports. Routine activity includes viewing system status and alarm conditions, monitoring weights and batch progress, and printing production reports. A batch ticket can be printed out automatically following each batch if desired.

It is important to note that once the system is in operation, XL BatchReports system is not required for daily production. XL BatchReports is used to create and download recipes to the PLC, log production data, and create production reports as required. The XL BatchMix PLC-based system handles the selection and execution of recipes loaded from XL BatchReports. In the event of a computer failure, no production should be lost. Up to four XL BatchReports PCs can be connected to one XL BatchMix Controller, operating at the same time, and reducing the possibility of lost data due to PC failure. Multiple PCs are configured to run redundancy checks against the main Operator PC in the cabinet. Redundant PCs are available for purchase, or can be provided by customer. A color printer is recommended for printing reports and is available as an optional component.

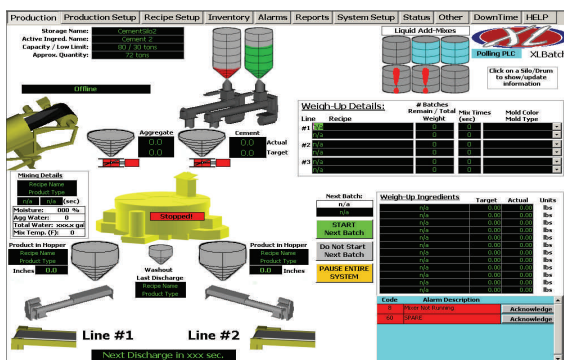
The XL BatchReports system has the following operational features:

- Current inventory, current recipe, current batch weights, and alarms are displayed on main operator screen
- Alarm monitoring system warns of low inventory levels, batch errors, and other system warnings or failures
- Set up of batches into batch queue, which allows downloading of batches to controller in any desired order at beginning of production day
- Batch ticket printing can be done at each batch, or printed daily, or anytime in the future for any individual day or date range
- Production and materials usage statistics and reports
- Recipe setup screen: set up ingredient weights and drop order
- System setup screen: set up fall times, settling times, mix times, product jog times, and intelligence ranges to allow system to tune-in the best ingredient properties, Ingredient creation and assignment to bins
- Dedicated operator screen used to monitor & maintain silo / bin inventory
- Based on raw materials received less batch ingredients used as well as physical ingredient bin levels (other sensors required)

The XL BatchReports system is setup such that only qualified operators or managers have access to certain screens. Three security levels are set up; administrator, maintenance, and operator. Each security level has the ability to access and modify only screens and data required for their respective responsibilities.

Following initial system design and programming, XL Automation works closely with you to develop a custom report set to exactly fit their needs. An on-site visit may be advantageous to iron out details. Prior to shipment of your system, the custom user interface and reporting package will be available for your final review and approval.

The XL BatchReports operator interface is not required to operate the batch system. All real-time control is contained within the PLC, so XL BatchReports computers can be taken offline at will with no loss of operation or batch history.



The XL BatchReports main screen is simple and intuitive.



The XL BatchReports PC is an off-the-shelf laptop, allowing easy upgrade and maintenance.

XL BatchMix Control System Overview

The XL BatchMix control system represents the latest technology in Allen-Bradley programmable controllers, the “Logix” platform. The CompactLogix PLC in this proposal is intended for small control systems, yet has the same powerful processor and instruction set that the advanced Logix systems include.

The XL BatchMix system is custom designed to meet each customer’s needs, and supports one mixer feed by up to 12 total aggregate bins and cement silos, 6 additives, unlimited hand-adds, 25-ingredients per recipe, unlimited PC recipes, 99 most recent recipes in PLC and associated equipment, as shown throughout this proposal. Special components and system tailoring are always available for quotation.

The XL BatchMix system can include support for the following specific customer needs:

- 12 Total Powder/Aggregate Storage Locations
- 2 Weigh Hoppers
- 6 Admixtures (fill/charge)
- 1 Mixer (any batch style mixer – turbine, ribbon, paddle, etc.)
- 3 Gravity Discharge Gates
- 2 Discharge Hoppers
- Direct Fill (Feedthrough) Lines
- Bagging, Packaging, and Palletizing Operations

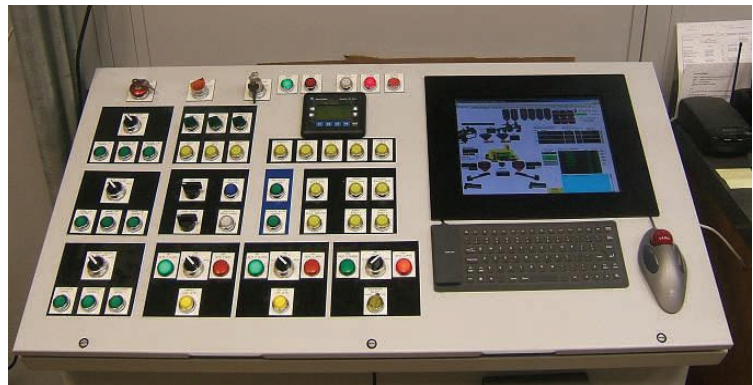
The XL BatchMix system provides a modular design package that can be customized for the wet mix or dry mix industries.

A fuse-less control panel design utilizes only circuit breakers for branch circuit protection, eliminating the need for spare . Load cells are fed to Acromag 851T smart programmable mV input blocks for optimum accuracy. To keep things cool in the cabinet, a door mounted heat exchanger runs at all times.

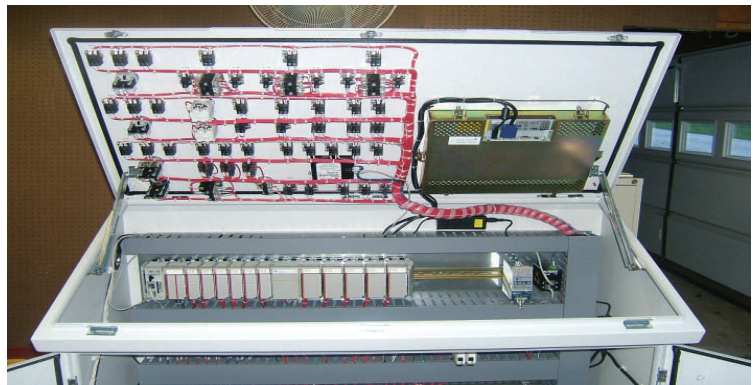
All operator control hardware (pushbuttons, etc.) are Allen-Bradley 800T or 800F metal devices for utmost reliability.

The XL BatchMix system has the following operational features of operation:

- Hardwired Manual (Can operate without PC/PLC), Semi-Automatic, or Fully Automatic Operation
- Automatic Re-Batch recipe & operator option, limited to mixer capacity
- Creation and modification of unlimited recipes and weigh/mix sequences
- Interlock system prevents improper sequencing, double-batching, or other undesired operations.
- Hand addition pause / acknowledge feature for hand added ingredients
- Service for up to three surge bins, selectable by recipe settings. PLC smart batching technology can automatically select batches based on current surge hopper levels.
- Interface with automatic mixer washdown system via “Batching/ Washdown” selector switch and relay (for wet mix operations with auto-washdown package by mixer supplier)
- Alarm horns for “System Alerts” like low supply levels and separate horn for “Batch Quality Alarm” for out of tolerance ingredients or interrupted ingredient supply, etc. Detailed alarm descriptions on HMI.
- Large external scrolling marquee displays production information, alarms, alerts, hand-add ingredients, etc. for remote viewing.



The XLBatchMix console is laid out logically with Scaling, Mixing, and Discharging operations separated out in groups arranged from top to bottom



The XLBatchMix control panel interior is professionally assembled and wired, ensuring ease of installation, modification, and troubleshooting.

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XL BatchMix Control Systems



XL Automation is an industrial services company that spans the hybrid skill sets required to execute automation projects on the plant floor. In today's environment, the highly complex control and information technology systems that run plant operations require higher levels of integration. XL Automation employs a skilled team of professionals from diverse backgrounds including controls, systems integration, engineering and information technology. These broad skills enable XL Automation to tackle complex problems and deliver innovative solutions.

XL Automation provides intelligent, integrated hardware and software solutions, from Controls and Systems Integration to Information Technology. Our experience with seamless integration of multi-vendor, multi-platform systems can take your plant to a new level of productivity, information access, and control.

ADDITIONAL CAPABILITIES

XL Automation's experience covers a wide range of applications and industries, from primary metals process lines to microelectronics motion control systems. Our wide experience range enables us to provide unique and innovative ideas and solutions to the challenges that face us on a day-to-day basis. It also allows us to provide a broader range of solutions to customers, allowing a "one stop shop" experience. Do you need a conveyor control system to compliment your batch control system? How about pump controls? Motor starter panels? Admix dosing system? We can provide all of this and more to ensure that you can rely on XL Automation for all of your automation needs.



Advanced control systems can operate many parts of the modern processing plant.



Variable Speed Conveyors are often utilized in cement batching operations.



Unique colors and company standard layouts can be easily accommodated..