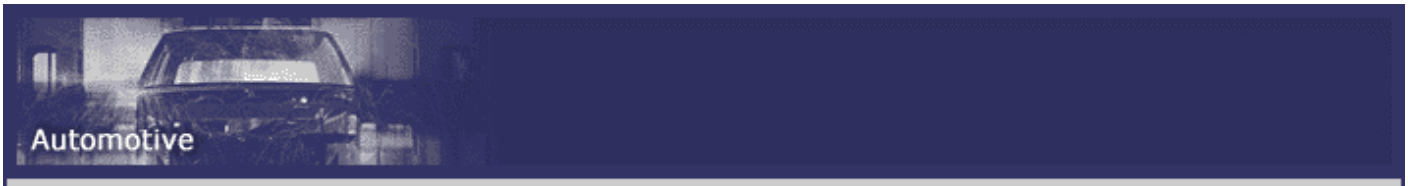
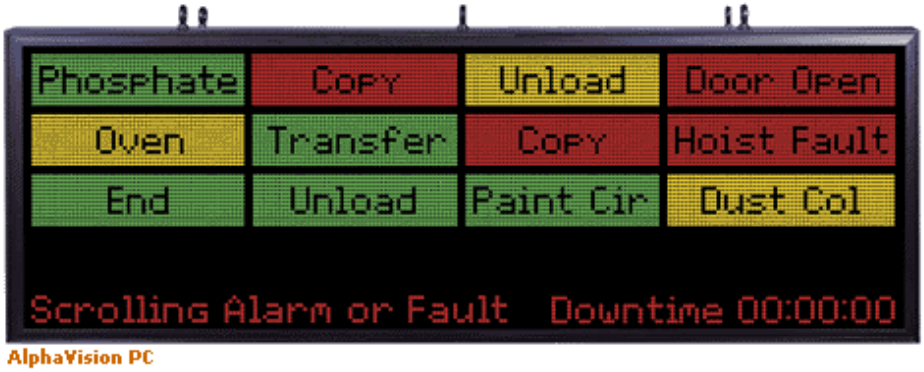
Real ROI Stories

LED displays can be used as a visual metric feedback tool for your lean manufacturing program.



Application-Automated Paint Lines



AlphaVision PC

Production Need	This automotive manufacturer produces mid size passenger vehicles and utilizes a state of the art automated painting line. To date, this facility has used older style "ANDON" displays that utilize incandescent bulbs and Plexiglas fronts. This older style static display required frequent bulb changes and offered very little information relative to line fault and alarm conditions. This forced line operators to consume unacceptable down time when correcting fault or alarm situations. A separate downtime clock was also purchased and installed to show operators actual downtime information.
Display Solution	Adaptive's new AlphaVision PC (AVPC) full-matrix displays offered a quantum shift forward in the way of information presentation. These 3' X 6' displays offered superior visibility, ten times increased reliability, integrated clock and alarm/fault messaging, and serial communication. The operators were also able to view traditional static ANDON information like conveyor fault, ID fault, Hoist Fault, Paint Circulation, Door Open, and Dust Vacuum among several other items.
Data Flow	Each operator station was equipped with call station panels that were wired to a PLC. A third party HMI package polled and presented this data, along with fault and alarm messages, to the AlphaVision PC over Ethernet TCP/IP.
ROI	Lost revenue costs associated with downtime were determined to exceed $5,000 per minute. The AVPC solution had an up front cost premium of $4,000 per board ($10,000 Vs $6,000) over the older style incandescent boards. This premium was further reduced by $1,500 when considering the added benefit of having a downtime clock included in the AVPC. The additional real-time fault and alarm information provided an estimated increase in uptime by a 1% minimum. This represented several hundred thousand dollars in annual savings and provided a ROI in less than two months.

Real ROI Stories

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Application-Automated Welding Lines	
 Alpha 7200	
Production Need	This automotive manufacturer produces minivans and utilizes a state of the art automated welding line for chassis construction. The weld line supervisor was interested in reducing down time caused by faults.
Display Solution	This application called for a pair of Adaptive Alpha 7200C, NEMA 4 displays communicating directly with the existing PLC. This provided two-way visibility at distances of up to 150 feet. These large displays provided a means for the line tender to immediately identify and correct the problem, without having to walk to the weld line's control station, and then walk to the machine fault location.
Data Flow	The serial command string included message attributes like color, scrolling, and flashing. The displays communicated directly to the PLC's serially over RS485 one-second transmission rates.
ROI	Lost revenue costs, associated with downtime, were determined to exceed $2,500 per minute. The displays allowed the machine tender to quickly identify and correct the faults. The average downtime for each of the approximate three incidents per day was reduced from six minutes to four minutes. This six-minute per day savings represented $15,000 in additional revenue resulting in a less than one day return on investment.

Application-Beverage Filling Lines	
 Alpha 420	
Production Need	Finished bottled products are weighed for fill accuracy. Products that are unacceptable are expelled from the line into a refuse bin automatically. The plant manager determined a 0.34% scrap rate was unacceptable. Due to distance between operators, adjustments on the filling line were taking too long to make.
Display Solution	Given that 420 displays were placed in strategic locations within the control room, the employees were able to see changing trends in filling rates in real-time. By proactively making adjustments relevant to the trend based on reject rates, the filling lines lowered their scrap rates from 0.34% to less than 0.25%.
Data Flow	Fill levels, rates and rejects are collected via the line PLC. The data is monitored on a PLC, logged and analyzed. Actual reject data is sent to the displays in real-time along with commands to control display colors for certain reject levels.
ROI	Savings were calculated to be approximately $500/day after installation. System costs were paid for in less than 10 days.

Real ROI Stories

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Application-Milk Packaging Facility	
 Alpha 7120	
Production Need	A large Midwest milk bottling/packaging facility receives milk in bulk. The milk is processed through a homogenization and a UHT pasteurization process before moving to the filler stations.
Display Solution	All equipment is in a sanitized environment where only NEMA 4X is allowed. Displays were integrated into the system to indicate line speed, batch status, UHT temperatures, flow rates and level. 7120C displays in a NEMA 4X rated enclosure were integrated.
Data Flow	Data is generated from a Honeywell DCS system that monitors all process variables and provides communications via RS485 to each display.
ROI	Savings were calculated based on reduced down time, better control of actual UHT temperature, and greater visibility of process conditions. Based on an initial investment of $15,000, the payback for the display was less than 10 weeks.

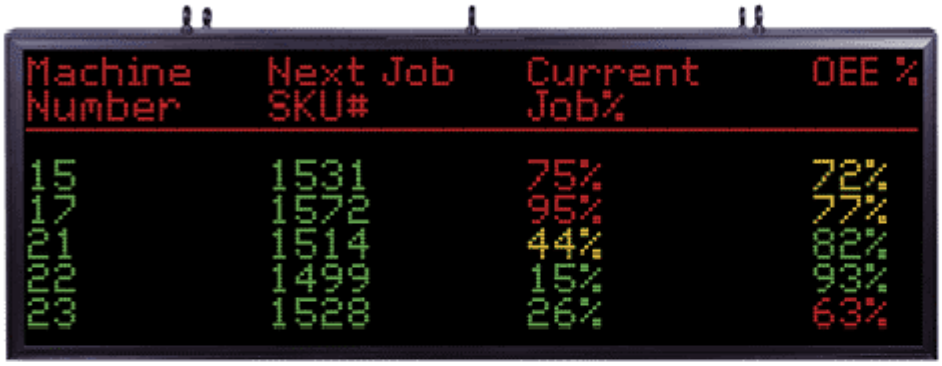
Application-Cream Cheese Package Filling Lines	
 Alpha 9160	
Production Need	Automated cream cheese filling lines were not meeting target production yields. Machine utilization is measured by "overall equipment effectiveness" (OEE) as a percentage of uptime for the shift which was only 32%. OEE data was not made available to the team until after the shift was over.
Display Solution	By integrating Alpha 9160 displays into their process, the customer was able to provide live, dynamic information on OEE to the team. The employees were able to make dramatic improvements in OEE uptime since they had real-time visibility of their machine status. Within 90 days, improvements from 32% to over 75% OEE were obtained.
Data Flow	OEE data is captured from the PLC which is calculating machine run times, sent to their HMI program and transmitted via TCP/IP to the displays in real-time.
ROI	Savings were calculated to be over $5,500/day based on improving from an OEE of 32% to over 75%. The displays paid for themselves in less than 4 days.

Real ROI Stories

LED displays can be used as a visual metric feedback tool for your lean manufacturing program.

Consumer Products

Application-Light Bulb Production



AlphaVision PC

Production Need	Operations management in this facility wanted to improve machine changeover time rates, and felt that a large "order queue" display could provide the machine changeover operators with enough real-time data to begin collecting the tools necessary for scheduled production runs. Overall equipment efficiency ratings per machine provided the machine operators with real-time feedback as to their performance.
Display Solution	This application included an AlphaVision PC located strategically above each of the three production machine pods. Machine tenders were able to easily determine where they were within a given production run (% complete). With detailed "next" order information from the plant's MES system, they were able to bring the required packing materials in a "Just In Time" fashion. Staging the required tooling in anticipation of the order completion reduced machine setup times.
Data Flow	Since data was required from a MES database and GE Cimplicity HMI software systems simultaneously, Ethernet communication was the only choice. ActiveX controls provided the data connectivity path to mine data from dissimilar systems, and present this information in a common fashion on the displays.
ROI	This application reduced changeover times by 40%. On average, a reclamation of 20 minutes of production time per shift, or 1 hour/day, equated to a net savings of an estimated $7,500/day. This included machine capital depreciation and burdened labor. ROI for these three displays was estimated at 3 days.

Real ROI Stories

LED displays can be used as a visual metric feedback tool for your lean manufacturing program.

Application-Bottling/Case Packing	
 AlphaVision PC	
Production Need	This brewery's bottling department production managers required a data display system that would allow any member of the management team to enter the bottling department and be able to determine the production status of all bottling lines and current SKU's within two minutes. Management felt that this would reduce the overall changeover time due to operators retrieving information from CRT kiosks. Management also wanted to reduce bottling line fault corrections, which were taking too long due to excessive fault detection time.
Display Solution	Management elected to use three double-sided Windows® 2000 based AlphaVision PC's. They were placed in three separate strategic locations where they could be viewed from any area in the bottling department. Key data regarding job percent complete, production volume per line, and alarm status were presented real-time. An added benefit included the ability for all line workers to view data on all bottling lines so that they may assist line managers as production issues occur. This collaborative effort supported this brewery's focus on team building and increased their flexibility in the working environment.
Data Flow	All production data and batch information is being collected and managed by an SAP database software system. The AlphaVision PC's onboard Windows® 2000 operating system allowed an effortless query of the production database for specific information, without expending a great deal of development time. They used Microsoft Excel and were able to show production information in both tabular and graphical formats.
ROI	The total system cost including installation, training, integration, and hardware was just under $100,000. Reduced production overruns (reduced inventory), quicker changeover times, and improved machine uptime due to quicker fault acknowledgments, produced enough savings to provide a 30-60 day return on investment.

Real ROI Stories

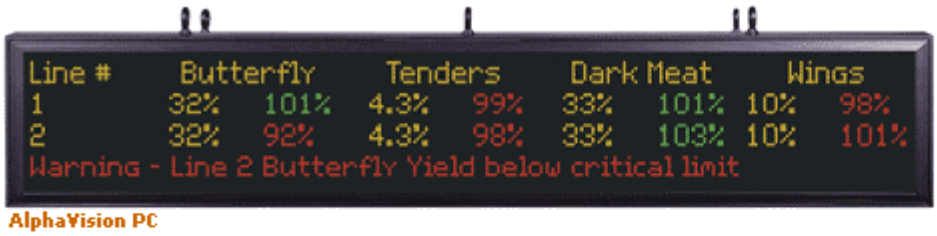
LED displays can be used as a visual metric feedback tool for your lean manufacturing program.

Application-Fiber Extrusion Tension Control

Alpha 9160

Production Need	This plant extrudes synthetic fiber onto threaded spools at a rate of 2,500 ft./min. When the thread winding tension exceeds the fibers elastic strength, the resultant thread break causes costly downtime and production waste. The plant manager wanted to present tension information real-time to his extrusion department's employees so that they could make necessary process modifications before a thread rupture occurs.
Display Solution	This application solution included an Alpha 9160 display located on both sides of the production area. Employees were able to easily monitor the thread process tension from multiple areas within their department instantaneously. In addition to thread tension, line speed, and spool buildup, information was also displayed in various colors, based on level of importance.
Data Flow	Tension monitors were placed in strategic locations on the extrusion lines and fed data back to an Allen-Bradley PLC-5/20 processor. This data was communicated to the Alpha 9160 displays serially at a one-second-update rate.
ROI	This application reduced thread breaks from three per day to one per day. Each break required twenty minutes to rethread the spools. Estimated production rates for this facility per line was $12,000 per hour. The reduction of two breaks per day represented $8,000 per day. The displays paid for themselves in less than two days.

Application-Poultry Processing



AlphaVision PC

Production Need	Processing plants strive to maintain a balance between processed meat yield and processing rates. Chicken processing plants are looking for ways to increase yield by just fractions of a percent. These small yields provide large net profit gains in a short period of time.
Display Solution	By integrating AVPC displays into their weigh scale systems, the customer was able to log and display live, real-time yield and productivity rates from their work stations on large displays for the employees to see. Yields are dynamically displayed for various meat products by line number.
Data Flow	Data is collected from weigh scales at each location and transmitted wirelessly to a control room PC system. The data is generated and sent to AVPC's over Ethernet.
ROI	For an average-sized processing plant with 4 to 6 lines, a 0.5% gain in yield equates to several thousand dollars. The entire system, including the displays, paid for itself in only a few months.

Real ROI Stories

LED displays can be used as a visual metric feedback tool for your lean manufacturing program.

Application-Employee Pick-line Statistics

Alpha 9120

Production Need	The vice president of logistics of a major distributor of industrial products was not convinced that his major distribution facilities were running at optimum efficiency. He hired a Lean Manufacturing consulting firm to investigate areas for improvement. Employee production information presentation was quickly targeted. The current system required warehouse employees to walk to a CRT monitor to view new orders and production rate status every time an order was completed. It was estimated that this consumed about 17 minutes per employee, per shift.
Display Solution	This application solution included several strategically placed Alpha 9120s, Alpha 4120s, and Alpha 215 displays. Employees were able to easily monitor their personal productivity, as well as their averages and trends against other employees. Standard data was shown in 'amber,' while employees below goal were shown in 'red,' and those above goal were shown in 'green.'
Data Flow	All data was communicated to the displays through an Ethernet network. A PC supplied data to the displays via a spreadsheet that monitored employee performance. A bar code tracking system and a warehouse monitoring software package provided the data collection means for the spreadsheet.
ROI	Each warehouse employee's time was billable at a fully burdened labor rate of approximately $42.00 per hour. Each shift utilized 70 warehouse employees. Daily savings=.283 hours saved per employee or $11.90/hr X 70 employees X 3 shifts=$2,499 per day. The displays paid for themselves in 29 days.

Application-Packaging of Consumer Products

Alpha 4200

Production Need	This company has a packaging facility that packages antifreeze, sidewalk salt, windshield washer solvents and other automotive products. The customer wanted the various lines to see each other's team performance and production statistics with strategically placed, live and dynamic displays. Data resided in an Excel spreadsheet and was printed and posted the following day.
Display Solution	4200's and a character matrix AlphaVision FS were utilized. The 4200's were located over each packaging area with data specific to their area of responsibility. The AlphaVision was used as a "central roll-up" board of all of the specific areas.
Data Flow	Their MRP system provides data to an Excel spreadsheet where Adaptive's AlphaNet 2.0 provides the headers and specific display management. The ActiveX Control manages the specific data within the Excel spreadsheet, and then fills in the appropriate area on the displays.
ROI	Savings were calculated to be over $30,000/year based on team performance improvements through a competitive awareness program. Payback for the displays was less than 3 months.

Real ROI Stories

LED displays can be used as a visual metric feedback tool for your lean manufacturing program.

Application-Steel Cable Braiding

Alpha 7120

Production Need	The production manager at this plant wanted to increase material utilization efficiency by reducing the spool overage per customer order. The current system required a machine tender to stop the braiding machine when a customer's order was wound complete. When the machine tender was away from his machine controls managing other assigned tasks, he would allow additional cable to be produced per customer order.
Display Solution	The production manager had one 7120C display mounted on each braiding machine and presented order production information along with anticipated finish time to the machine tenders. Some machine alarm status information was also presented.
Data Flow	Spindle speed and spool roll information was measured by a few optical encoders and the data was sent back to an Allen-Bradley PLC 5/25 processor. The PLC then processed the data using preprogrammed formulas. Finally, the data was sent to the displays serially.
ROI	Each machine produced an average of seven customer orders per day. Each customer order manufactured included an average of 2% overage. Each order overage produced an average cost of $75.00. The displays reduced the overage from 2% to less than .5%. This represented average savings of $393.00 per day, per machine. The displays paid for themselves in less than 4 days.

Application-Employee Safety

AlphaEclipse 2500

Production Need	This company provides packaging for automotive fluids and other chemicals. The product is brought in by freight cars very close to employee entrances. Management required a means for displaying safety information to employees.
Display Solution	A 2500 AlphaEclipse outdoor display along with a discrete input interface was integrated into their safety system. The AlphaEclipse was installed by the dock doors with pre-canned messages that simply showed date and time when traffic was of no concern, and a message that displayed "train approaching!" This was to keep employees from stepping out of that specific dock door.
Data Flow	A contact closure from the freight train signaling system closed to trigger the warning message via the Discrete Input Interface module.
ROI	Savings were calculated to be over $5,000/year based on savings from OSHA and insurance ratings. Payback for the display was less than 11 months.

Real ROI Stories

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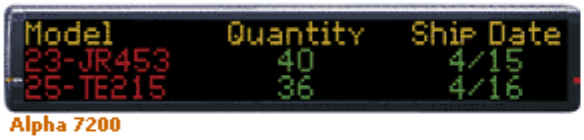
Application-Power Generator Manufacturer



Alpha 7200

Production Need	This manufacturer of portable generators has over 40 assembly lines where generators are built. Each line utilizes manual labor and they get their production schedule from a white board over each line. The MRP system provides data to an Excel spreadsheet that is periodically printed by the floor supervisor who then updates over 40 white boards with part number, quantity required, what is coming next, and any other instructions.
Display Solution	A 3-line, 7200C display was placed over each assembly line. The data on each display resembles the information that was written on white boards before. The relevant information includes Model Number, Quantity, Due Date, and the next series of products in the queue.
Data Flow	The data moves from an existing MRP system, where order scheduling and shop floor loading is configured, into a central Excel spreadsheet. Our ActiveX Control points specific information to each addressed display.
ROI	Savings were calculated to be over $50,000/year based on the company's ability to provide another value added role for the employee that previously updated white boards, and also an air of competitiveness between the teams. Payback for the displays was less than 6 months.

Application-Semiconductor Processor Manufacturer

Alpha 4120

Production Need	This manufacturer provides a line of customer specific ASIC chips. It is critically important the wafers manufacturing process be done in a "clean room" and controlled environment. This includes temperature, humidity and particulate management.
Display Solution	Chart recorders are used to record trends, but didn't supply enough dynamic information in a timely fashion if adjustments needed to be made in the clean room environments. The 4120 displays provided the three critical variables, temperature, humidity and PPM of particulates present to quality control and other personnel.
Data Flow	Each clean room has its own HVAC and filtration system controller. Data from the serial port of the controller simply provided Alpha protocol to each 4000 display via RS232.
ROI	Savings were calculated to be over $2,500/day based on faster trend monitoring and awareness from the employees. Payback for the displays was less than 2 weeks.

Real ROI Stories

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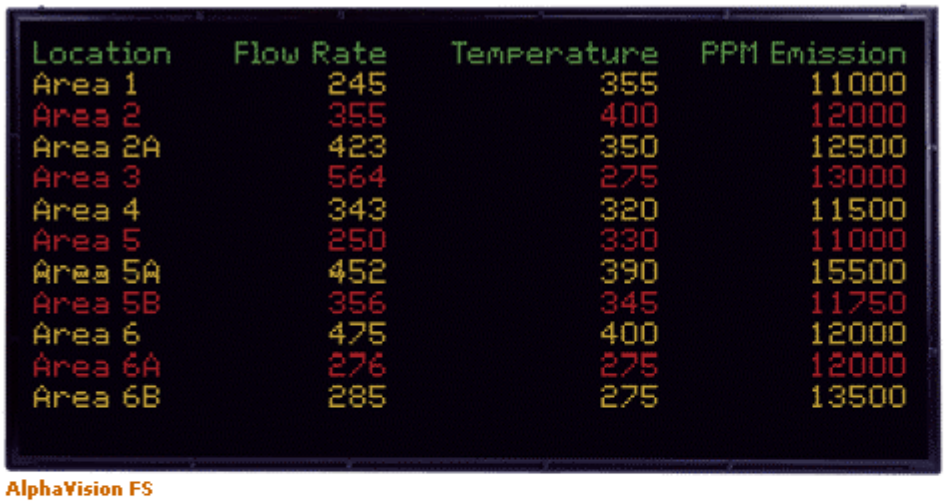
Application-Petrochemical Processing Plant	
 AlphaVision FS	
Production Need	This facility has a large control room where many locations around the facility are monitored and controlled for gas flow, exhaust emissions, emergency shutdowns and fire/gas monitoring. Without continually traveling back to the control room, there was no other visible monitoring system.
Display Solution	The customer wanted a large AlphaVision display to identify each processing system, and the status of each in a columnar format. An AlphaVision FS tricolor, 48 x 12, 2.1" character matrix, ActiveX control and Ethernet Adapter was selected and installed.
Data Flow	The existing control room system provided the data to an Excel spreadsheet. This sheet, along with ActiveX control, provided communications to the board via TCP/IP.
ROI	Savings were calculated to be over $5,000/week based on improved efficiencies and savings through allowing other departments accessibility to performance data. Payback for the displays was less than 4 weeks.

Real ROI Stories

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Application-Water Purification Facility

Alpha 7120

Production Need	A large municipality provides city water from deep wells. EPA requires monitoring of levels of coliform bacteria, nitrates and lead in all well water supplies. These variables are monitored via a sophisticated system of instrumentation and monitoring equipment that capture ongoing data for future reference. Certain functions need to take place for filtration, chlorination and alarm notification when safe levels are not maintained.
Display Solution	The municipality wanted to integrate displays into their monitoring system so employees could see at a glance the status of the wells. 7120C's in NEMA4X enclosures were integrated to display PPM's pH levels and any other variables that require chemical intervention to maintain a balanced system.
Data Flow	The monitoring equipment is a PC based system that continually logs data points via a data acquisition system. An ActiveX control was embedded in the data Aq system to communicate to the 7120's via RS485.
ROI	Savings were calculated to be over $10,000/year based on improved visibility of water condition. Payback for the displays was less than 4 months.

Application-Cigarette Manufacturing

Alpha 420

Production Need	A cigarette manufacturer needed to monitor and present line speeds and machine events/ faults on displays along each line. Down time is measured by thousands of cigarettes per minute lost when there is a machine problem.
Display Solution	Single line displays were integrated with the PLC's to provide event/fault messaging along the lines. The operators were able to take immediate action due to the dynamically visible information presented. Proactive response to events, faults, and machine down times are other added benefits. The displays also provide line production information creating competition between teams.
Data Flow	Data is transmitted from the com port on each PLC displaying counts in cigarettes per minute. Data is serial protocol sent via RS485 to the displays.
ROI	Savings were calculated based on cigarettes produced per minute. Employees are encouraged to reduce down time on their machine. Savings are estimated to be over $10,000/month based on increased production due to the reduced down time benefit. Payback for the displays was less than 6 weeks.