Examples of Existing Applications by Industry

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SoftPLC Corporation’s products are proven solutions for a diverse set of industries and applications. Some examples are listed in this document, loosely classified by industry.

Power Generation and Distribution Industries

MACHINE/PROCESS	CUSTOMER	1ST SYSTEM	HARDWARE
Coal Generation-Bottom Ash Material Handling	Detroit Edison	1774 PLC Migration	STD Bus Computer, Hardbook SoftPLC, A-B 1778 & 1771 I/O
	Customer had (2) obsolete A-B 1774 PLC systems they wanted to update and expand. Using SoftPLC's PLC-2/PLC conversion utility, the original ladder logic was converted to run in SoftPLC in under 1 minute *(no changes were needed)*. Using an A-B remote I/O interface card in the SoftPLC CPU, the existing 1778 I/O was used. Additionally, approx. 100 new rungs were added to each program to support new racks of 1771 I/O. An HMI application was added to the system as well. The entire conversion and additions were up and running in under 2 weeks. The customer originally implemented the systems in March of 1994 using Pro-Log STD bus computers. As part of the plant's Y2K upgrade process, the Pro-Log systems were replaced with Hardbook SoftPLCs.		
Hydroelectric Power Generation	US Army Corps of Engineers & US Bureau of Reclamation	Replacement for DCS	Hardbook SoftPLC, 3rd party I/O
	Multiple applications including turbine controls for hydroelectric power generation, fish ladder controls, pump plant, and more. Case Study		
Ethanol Plants	Various / OEM: Mitre Engenharia Ltda	New	Hardbook SoftPLC, Siemens Profibus I/O
	(3) SoftPLC's control each entire plant, including the steam generator, diffuser and pre-evaporator, water treatment, and fermentation and distillation equipment. Each SoftPLC is a Profibus Master which controls its own distributed network of slave I/O drops. Siemens Profibus I/O is used in addition to selected devices from other manufacturers. A custom Java-based SCADA application is used to communicate with SoftPLC controllers over ethernet using SoftPLC's embedded Java interface. SoftPLC's virtually limitless user memory, versatile PID control and floating point calculations coupled with the extremely fast response times allowed for superb plant performance. Case Study		
Biomass Power Generation	Blue Lake Power	New	Hardbook SoftPLC, Tealware I/O
	Four SoftPLC's with Ethernet Tealware I/O are used for material handling and process control in this biomass electric power plant. The plant was original a coal-fired plant, that was converted to burn waste wood chips, capable of generating 12.5MW of renewable power. Case Study		

MACHINE/PROCESS	CUSTOMER	1ST SYSTEM	HARDWARE
Natural Gas Supply System	China Petroleum Corp	New	Redundant SoftPLC, Tealware I/O
	Integrated system with remote monitoring capability for Natural Gas Supply systems in multiple locations throughout a County. The system includes 12 Hot Standby SoftPLC systems for gas station controls. The entire system is integrated by an optical networking and telecommunication back up system. SoftPLC was selected due to the capability of a low-cost redundant system, remote maintenance capabilities *(via the embedded web server)*, and similar programming to A-B *(the customer's previous PLC of choice)*.		
Annunciators	US Army Corps of Engineers	Replace old system	Hardbook SoftPLC, ModbusTCP Opto SNAP I/O
	These systems were installed to modernize the large hydroelectric plants' annunciation systems. The operators needed a flexible and expandable system which allowed for easy insertion of new points and smart grouping of alarm points by function. USACE selected a SoftPLC controller with an embedded web server to drive SoftPanel Annunciator software from the integrator, ACSI. One of these applications has over 100,000 rungs of ladder logic, running in less than 27msec on a 266MHz CPU. Case Study		
Remote Operated Vehicles	ROV.NET, various end-users	New	PC/104 & VME PC's running SoftPLC, PC/104 & VME I/O
	Control of unmanned submarines used for off-shore oil rigs. Case Study		
Data Concentrator / Protocol Converter	Undisclosed	New	Hardbook SoftPLC, Enron Modbus, DH+
	Natural gas facility: Almost all natural gas plants use an extension of Modbus called Enron Modbus which uses several data types not found in the standard Modbus protocol. The customer had existing A-B PLC-5 controllers and was adding 4 new gas chromatographs, which needed to send data to the PLC-5's. Because the PLC-5 could not communicate on Enron Modbus, a protocol converter was needed. The existing ModbusTCP driver from SoftPLC was quickly modified to create an Enron ModbusTCP driver. The PLC-5's also did not have the memory capacity to handle all the data from the chromatographs, so logic was added to the SoftPLC to store, concentrate and average the data before sending to the PLC-5's. SoftPLC's tremendous data table capability, coupled with its DH+ messaging ability, made it a natural choice for this application.		

Water & Wastewater

One area where SoftPLC's are used extensively is in water and wastewater applications, including municipalities, manufacturing facilities, and small systems such as golf courses, subdivisions and septic. Over 60% of the water applications in Taiwan are SoftPLC controlled.

Machine/Process	Customer	1st System	Hardware
Distributed RTU's / Cellular SCADA Systems	Various	New/Replacements	Smart & NeoPAC SoftPLC's, Tealware I/O, TagWell to Web Studio
	Pump stations, lift stations and water towers are controlled by a SoftPLC, providing localized data logging and a web browser based HMI. Alarms are sent via text message and also to the TagWell cloud. All systems are connected via cell to TagWell, which runs an aggregator application providing regional staff an overview of the systems within their responsibility via web browser, with the ability to drill down into any single unit. A master Web Studio SCADA application at each regional plant and corporate HQ provides detailed historical information, alarms/trending, reports, etc. by connecting to TagWell, tremendously reducing the overall cost of the annual communications for the entire system.		
Wastewater Reclamation	BP Oil	New	Tealware SoftPLC, Tealware & Wireless I/O
	The system is a pump station that extracts hydrocarbons from ground water. Remote monitoring is done via the internet and web pages in the SoftPLC. One of the challenges of this system was some I/O that needed to be mounted on the opposite side of a large concrete apron, so wireless I/O was utilized. The customer had previously used Siemens S200 PLC's, but the communications were not as robust or inexpensive as with SoftPLC, and the web connectivity was not available.		
Chemical Plant Water System	Formosa Chemicals and Fibre	New	Tealware SoftPLC, Tealware I/O
	SoftPLC is monitoring and controlling the pumping station, which supplies water to the whole plant. The customer wanted to control the pump from their offices *(30 minute drive from the plant)*, and also to monitor the pump from headquarters *(which is 60 miles away)*. The remote control & monitoring was accomplished using SoftPLC's embedded Web Server.		

Machine/Process	Customer	1st System	Hardware
Septic Monitoring & Alarming	Various	New	Micro SoftPLC, custom I/O
	SoftPLC is monitoring septic systems. In the event of a fault, alarms are sent via text messages. Additionally, the SoftPLC logs chemical levels, etc. and generates reports required by government agencies. These reports are sent as email attachments to the system operators.		
Chemical Plant Cooling Water	Undisclosed	SLC-500, Panelmate Replacement	Smart SoftPLC, Tealware I/O, Web Studio
	The original system was a SLC-500 connected serially to one HMI and Ethernet to another. The new system is a Smart SoftPLC communicating on Ethernet to (2) Web Studio HMI's. The SLC-500 logic was converted to run in the SoftPLC and only required a few changes to accomodate the new I/O. The Web Studio applications were converted via a utility from the Panelmates. ModbusTCP is used to connect to the DCS system in place of an obsolete DH+ to serial gateway. This customer has since converted a number of other PLC-5 and SLC-500 and Panelmate applications at other end user facilities.		
Power Plant Water Treatment System	Raytheon Ebasco Overseas Ltd	New	Redundant Tealware SoftPLC, Tealware I/O
	A redundant CPU SoftPLC Tealware system is controlling a water pre-treatment plant of 400m3/hour for a plant in Saudi Arabia using a fiber optic connection to remote Tealware I/O. The SoftPLC is communicating with an existing DCS system via Modbus.		
Drinking Water Treatment Plant	Taiwan Water Supply	New	Redundant Tealware SoftPLC, Tealware I/O
	Water treatment control system includes automation of a 600,000m3/day (CMD) treatment plant that supplies drinking water. The system includes 3 hot standby Tealware SoftPLCs, 12 remote drops, around 4,000 digital points and 450 analog I/O channels. Redundant Ethernet and redundant iFIX HMI were integrated with the SoftPLC's in the system.		
Wastewater Treatment Plant	Taipei City Government	New	Redundant Tealware SoftPLC, Tealware I/O
	This system controls a wastewater treatment plant with the capacity of handling 500,000m3/day of wastewater. The system includes 4 hot standby Tealware SoftPLC's, more than 20 remote drops with dual remote I/O communication, more than 9,000 digital points and more than a thousand analog I/O channels. Eight iFIX HMI with redundant Ethernet communication were integrated with SoftPLCs to automate one of the biggest wastewater treatment plants in Taiwan.		

Transportation Related Industries

Machine/Process	Customer	1st System	Hardware
Stamping Press	Toyota	Upgrade	Smart SoftPLC Gateway
	Upgrade of a large stamping line to add safety and enhance performance utilized a Smart Gateway to pass data between a PLC-5, Mitsubishi PLC, Siemens Safety PLC's, an HMI and a Press Controller, using 4 different protocols simultaneously. Case Study		
Portable Liquid Pump System	Various Automotive	New	NeoPAC SoftPLC, Serial I/O
	Portable system capable of dispensing a wide range of fluids precisely and accurately. The peristaltic pump is controlled exclusively via Ethernet, and is configured using a web interface, eliminating the need for a HMI. This unit uses a NeoPAC SoftPLC with the embedded web server and includes a servo driven pump and some serial I/O. It can connect to other vendor controls via Ethernet/IP or ModbusTCP.		
Test Stand	Detroit Diesel	PLC-2 Migration	STD Bus Computer, Hardbook SoftPLC, A-B 1771 I/O
	The customer converted a PLC-2/30 system, leaving the existing A-B 1771 I/O in place. The original 8K of PLC-2 ladder logic was converted to run in SoftPLC in under 1 minute, with no changes necessary. The customer selected a Pro-Log STD bus computer for this application as it was the only PC based A-B Remote I/O interface available at the time. Customer later upgraded additional A-B PLC-2 and PLC-5 systems using SoftPLC Hardbooks with a 1784-KTX card for the A-B I/O interface.		
Engine Assembly Lines	Detroit Diesel	New	STD Bus Computer, Hardbook SoftPLC, Interbus I/O
	After previously proving the SoftPLC technology on test stands, the customer implemented 2 entirely new engine assembly lines each utilizing a number of SoftPLC's with Interbus I/O. Based on previous experience and wanting multiple CPU's in a single backplane, the customer selected Pro-Log STD bus computers for these applications. Later systems used SoftPLC Hardbooks because there was no need for multiple CPU's. The multiple CPU systems used (1) CPU for the SoftPLC, (1) for a custom interface to AFS Nut Runners, and (1) for TCP/IP communications using a custom protocol to a DEC Alpha system managed by EDS, as well as a Line Controller/Operator Interface system. The savings over a traditional PLC system due to the need for the custom protocols, as well as using Interbus versus traditional PLC I/O was over $5M USD.		

Parking Space Availability System	Taipei City Government	New	Tealware SoftPLC, Tealware I/O
	Parking lot information system monitors open parking spaces in all the city public parking facilities. Availability of space is displayed on a sign located at important road intersections. The information is also updated at the City's web server, and drivers can check parking lot information via cell phone. A java based interface between the SoftPLC at each parking lot and the City's master Oracle Database provides the information for the web site. SoftPLC was chosen because of its capability to connect many sensors and communicate to signs from a wide variety of suppliers. The programming from the database side is uniform regardless of the specific sensors or signs used.		
Wheel Alignment Machines	Durr Somac/various automotive makers	Replaced proprietary PC design	PC Workstation w/ CoProcessor, Interbus I/O
	The original design was a custom PASCAL program for control and operator interface. The end users wanted the control in ladder logic for maintainability. Due to space limitations and difficulty to integrate with the custom PASCAL HMI, SoftPLC provided a perfect solution. A single board coprocessor system runs SoftPLC, with an Interbus I/O interface mounted to it. Communications from SoftPLC to the custom HMI are done over the industrial workstation motherboard backplane.		
Fluid Fill Machines	BMW/Frigo-France	Replaced PLC + PC design	Hardbook SoftPLC, Interbus I/O
	The original design was a Modicon PLC with a PC running a Basic program that did the fluid level and seal testing. The new design was a Hardbook SoftPLC with Interbus I/O. The Basic program was re-written to C language, and implemented as a custom loadable module in SoftPLC (TLM), thus eliminating a 2nd "box" and a communications problem. The first system was installed in Feb 1994.		
Fluid-Fill & Brake Test Machines	Rover Cars Ltd	New	Hardbook SoftPLC, Interbus I/O
	A new machine design required 28 serial ports to support a number of bar code reader inputs along the assembly line. A SoftPLC Processor with 32 serial ports, and an Interbus I/O interface card was utilized to fill and test all the fluids in the final assembly area. COMGENIUS was utilized to process the bar code inputs. A PLC with this number of serial ports would have been prohibitively expensive.		

Food/Beverage, Pharmaceutical and Consumer Products Industries

Machine/Process	Customer	1st System	Hardware
Beer Bottling	Polar Cerveciana	PLC-3 & PLC-5 Migration	Hardbook SoftPLC, A-B 1771 I/O
	The existing system *(which unpacks, washes, fills and repacks beer bottles at 1600/minute)* consisted of a PLC-3 and (2) PLC-5/15's. The system integrator imported the PLC-5 programs, added this to the converted PLC-3 program, and made adjustments for the combined logic and I/O to create a single SoftPLC ladder program. The resulting system was implemented in a Hardbook SoftPLC scanning the existing 16 full racks of A-B 1771 I/O. The scan time, on a 486 CPU, was under 13 msec! The system was later updated to a Pentium 200 CPU, with a scan time of under 5 msec. The initial entire conversion/installation process took under 2 weeks.		
Wood Stick Manufacturing Line	John Lewis	New	Hardbook SoftPLC, Tealware I/O
	The assembly line manufactures small wooden sticks at a rate of 100,000 sticks/hour, then sorts them based on quality to be packaged as various end products *(popsicles, coffee stirrers, craft sticks)*. This very high speed application uses a number of PLC's connected via ethernet, with one PLC acting as a web server to provide data to a web-browser based HMI. A serial interface to a vision inspection system is included which provides the desired quality sortation information to SoftPLC.		
Milk Production	Bonlac Foods	PLC-5 Migration/Expansion	Hardbook SoftPLC, A-B SLC-500 & Profibus I/O
	The SoftPLC replaced a PLC-5/80E with 7 racks of SLC-500 I/O, which was out of memory and I/O capacity. The ladder logic was imported to SoftPLC, and 30 Profibus valve controls were added to the system. Communications networks include an ethernet connection servicing (2) Citect I/O servers, (6) Citect Display Clients, a DH+ connection to (9) A-B PLC-5's, (8) A-B Panelviews and (1) A-B SLC-5/04. The Citect System uses a total of 28,000 tags. Throughput time on the SoftPLC was 12msec - on a 386! The system was updated in 2008 with a Pentium level Hardbook SoftPLC, and additional I/O and logic was also added at that time. Case Study		
Shrimp Processing	Pacific Shrimp	New	Industrial PC, Smart SoftPLC, Tealware I/O
	Seafood processing and data acquisition systems. The SoftPLC controls both local and remote Tealware I/O, and is used not only for control, but also as a data concentrator. The original system used a 19" rack mounted industrial computer, but later systems utilize Smart SoftPLC's.		

Machine/Process	Customer	1st System	Hardware
IC's for Medical Tests	Thermobiostar	New	Tealware SoftPLC, Tealware I/O
	The machine applies an antibody to an IC and seals it. The IC's are then used for in-doctor's office strep throat testing. The SoftPLC system utilizes COMGENIE for serial communications to a motion controller, and includes a Citect based operator interface.		
Data Concentrator	Safeway Milk	New	Tealware SoftPLC, Tealware I/O
	SoftPLC acts as a data concentrator, obtaining production information from (8) A-B SLC-500's. The SoftPLC Web Server is then used to provide formatted information on the company intranet and the internet to web browsers. SoftPLC's ability to easily connect to the A-B PLC's, tremendous data table capacity, and the embedded web server all combined to make this an easy to implement, low cost solution for e-Automation.		
Sausage Stuffing Machine	Devro-Teepak	Replacement of SLC-500	STD Bus Computer, APIX STD bus I/O
	The original design used an SLC-500 with an in-rack Basic module which communicated to a high speed Servo via an RS-232 channel. Timing problems resulted because: (a) the data coming into the Basic module was limited to 19.2Kbaud, (b) the Basic program needed to run a large number of calculations for the Servo before it passed the information to the PLC, and then (c) based on where the PLC was in its cycle, the control did or did not happen in the proper sequence or fast enough. The servo calculations required were extremely lengthy and needed to be done within 1/100th of a second, so rather than burden the control PC with this, they were still done in a separate PC in Basic. The hardware selected was a Ziatech STD-32 multi-processor system—1 CPU running SoftPLC for control, 1 CPU performing the calculations, and a third CPU running an operator interface program and the SoftPLC programming software, TOPDOC. High-speed APIX I/O was selected, which fits right in the Ziatech backplane. In a global memory area, information is passed between the SoftPLC and the Basic program. This solution resulted in a faster controller (SoftPLC) with better inter-CPU communications, as well as a lower cost and faster I/O platform. Using the SLC-500 conversion utility from SoftPLC, the OEM was able to convert the usable SLC-500 logic to run in SoftPLC, and wrote a C function to read/write to the global memory area - all in less than one day! All objectives for the machine re-design were reached, including intercommunications between the various control elements, cost of machine, processing speed and reliability of operation.		

Mining, Metals, Warehousing and other Material Handling Industries

Machine/Process	Customer	1st System	Hardware
Steel Production	Schultz Steel	PLC-5 Migration	Hardbook SoftPLC, A-B 1771 I/O
	The customer wanted to add Fourier Transform Analysis calculations for metallurgy to an existing PLC-5 controlled system. A-B had proposed an expensive, proprietary co-processor module. A less expensive and more elegant solution was to replace the PLC-5/40 with a SoftPLC Processor with an A-B RIO interface card. The PLC-5 logic was imported, then the Fourier Transform calculations were built as TLI's by the user and added to the program. The existing I/O and HMI were unchanged.		
Glass Coating Machines	OEM: Applied Films End Users: various	PLC-5 Migration	Hardbook SoftPLC, A-B 1771 I/O
	The machines coat glass, such as for rear-view mirrors and LCD displays. The original design used a PLC-5. The OEM wanted to use intelligent power supplies with a serial interface, but doing so with a traditional PLC would have been difficult. The original logic was imported, and the customer wrote TLM's to implement the serial communications. Case Study		
High Speed Overnight Envelope Sorting	OEM: Sandvik Sorting Systems End users: Post Office, FedEx, DHL, etc.	PLC-5 Migration	Hardbook SoftPLC, A-B 1771 I/O
	The previous design used (2) PLC-5's, but the system was too slow and the envelopes were being mis-sorted, with only 20 diverter stations. The new design called for 50+ diverter stations and more speed. The original logic from the (2) PLC-5's was combined, then imported into SoftPLC. A TLM called CONVEYOR was developed to replace cumbersome ladder logic that matched the correct diverter station with bar coded zip code input, eliminating about 300 lines of logic.		
Aggregate Production	Etheridge Automation	New	Smart & Tealware SoftPLCs, Tealware I/O
	This OEM develops Quarry Automation systems - rock crushing to screening. Previously they had used PLC-5 or SLC-500 based on the size of the quarry, and thus were able to easily re-use their ladder logic with SoftPLC. The system design utilizes Tealware local and remote I/O, with a centralized Wonderware monitoring and control system to maximize uptime on conveyors and crushers. Communication to the SCADA system is via wireless modems. Case Study		

Machine/Process	Customer	1st System	Hardware
Aluminum Smelting	Century Aluminum	New	NeoPAC SoftPLC Gateway
	The customer uses a PLC-5 that had been connected on A-B RIO to some older A-B drives. Running 365/24/7 they could not handle a long shut-down and needed to replace the drives. They selected Siemens Ethernet/IP drives and used a SoftPLC Gateway to enable a quick upgrade without having to change the PLC-5 logic. Case Study		
Mold control in Continuous Steel Caster	PESCO	New	Industrial Rack Mount SoftPLC, Profibus & PC-bus I/O
	The SoftPLC is performing mold level control in a continuous caster. Profibus is used for the remote I/O, and direct PC bus I/O is being used for cost savings and high-speed needs.		
Stamping Press	Northwest Industries	New	Tealware SoftPLC, Tealware I/O
	The system controls a 1000 ton tool & die metal stamping press, including managing recipes for different parts and an absolute encoder to determine press position.		
Aluminum Production	Valesul Aluminio	Upgrade from PLC-2	Hardbook SoftPLC, Profibus I/O
	A SoftPLC Processor controlling Profibus I/O replaced an old PLC-2/20, converting the ladder logic and only making the changes necessary for the change in I/O brand, and to add enhancements not possible with the old system.		
Concrete Production	Cadman Inc	New	Tealware SoftPLC, Tealware I/O
	The system controls a large sand, gravel and ready mix concrete plant, including automated control of a river dredging crane, many short haul conveyors, several mile-long conveyors, rock washer machines, rock crusher machines, and concrete mixing machines. System includes (2) SoftPLC CPU's with local and remote Tealware I/O, and some Modbus serial devices. The operator interface is a Cutler-Hammer PanelMate located in a control tower.		

Wood Industries

MACHINE/PROCESS	CUSTOMER	1ST SYSTEM	HARDWARE
Veneer Stacker	Boise Cascade, Weyerhaeuser, Georgia Pacific, Int'l Paper, Potlatch, many others	Upgrade from PLC-5 plus PC	Hardbook SoftPLC, Tealware; A-B 1771; PCI bus I/O, Delta Tau PMAC Motion
	High Speed Veneer stackers sort wood by moisture and sheet size. Ladder scans must be below 0.5ms and total system response time must be below 1 ms. Veneer travels into the stacker at >1,000 feet/minute. High speed analog I/O boards and a PC based motion controller are part of the systems. The increased machine speed and better moisture sorting saves the customers millions of dollars. Previously, these systems used a PLC-5 plus a proprietary computer for the high speed I/O and motion controls.		
Lumber Treating & Chemical Mixing Process	McFarland Cascade	New	Tealware SoftPLC, Tealware I/O
	This system automated a lumber treating & associated mixing process formerly done by hand. Includes serial connections to Panelmate HMI, Sick Optic Lasers for liquid level measurement, and Cutler-Hammer VFD's. The embedded Web Server is used to access support documents stored in the SoftPLC.		
Automated Wood Grading Station	Weyerhaueser	Replacement of PLC-5	Tealware SoftPLC, Tealware & DeviceNet I/O
	This wood grading station upgrade improved plant capacity by eliminating a bottleneck, and reducing downtime. The embedded web server in SoftPLC was used to display information on a web page, allowing any leader on the plant's network to see the critical metrics of the grade station in real time, with no special software required. Based on the success of this application, this customer also upgraded the controls on their oven kiln controls. Case Study		
Wood Dryer Controls	Weyerhaueser	Replacement of PC system	Tealware SoftPLC, Tealware & DeviceNet I/O
	Due to the success of a wood grading station upgrade from A-B to SoftPLC, the customer also upgraded their Hardwood Oven Dryer kiln controls, which were formerly a PC-based system. The system was upgraded to reduce drying time and to improve the product quality. Due to obsolescence of the DeviceNet devices, some of the systems were upgraded in 2019 with Smart SoftPLC's and Ethernet I/O, leaving the Tealware I/O in place.		

MACHINE/PROCESS	CUSTOMER	1ST SYSTEM	HARDWARE
Veneer Production	Boise Cascade	Replacement of Modicon PLCs	Tealware SoftPLC, Tealware I/O
	A single SoftPLC replaced (3) Modicon PLC’s for control of this veneer production machine. The system also acts as a data concentrator, collecting data from another Modicon PLC via Modbus and also from a PLC-5 over Ethernet.		

Petrochemical, Oil/Gas and other Process Industries

Machine/Process	Customer	1st System	Hardware
Chemical Materials Production	Unity Chemical Ltd	New	Redundant Tealware SoftPLC, Tealware I/O
	Hot Standby SoftPLC's automate the production process of DCP chemical (product of the company). The manufacturing line is around 200 meters and has several boilers requiring very sophisticated PID control. SoftPLC's PID control capabilities, cost savings, good technical support, and expansion capabilities led the customer to use SoftPLC. Two iFIX HMI, 3 hot standby Tealware SoftPLCs, 6 remote drops with more than a thousand digital I/O and a hundred analog I/O channels were used in the control system.		
Oil Rig Monitoring	Various	New	Smart SoftPLC Gateway
	Smart Gateway connects via ModbusTCP to HMI & controller, Modbus 485 to drives, and an ethernet interface to a satellite modem to remote SCADA.		
Fiberglass Production	Evanite Fiber	New	Tealware SoftPLC, Tealware I/O
	Manufacture of special purpose fiberglass that is used in semiconductor clean room air filters and other products. The embedded SoftPLC web server is used as the HMI for this application.		

Textile Industries

Machine/Process	Customer	1st System	Hardware
Medical Cloth Manufacturing	Undisclosed	Conversion from PLC-5/VME	Hardbook SoftPLC, A-B 1771 I/O, SERCOS motion
	The machine produces cloth used for medical applications. The OEM imported existing PLC-5/VME logic into the SoftPLC, converted the VME based motion control to run in an Indramat PC-Based SERCOS card for the 24 axes of motion, and used the existing 1771 I/O. SoftPLC's embedded web server is used as an operator interface and also as a way to access the on-PLC user documentation, CAD drawings, and a set-up video.		
Dyeing Machine	D'Alma Elettronica	New	Hardbook SoftPLC, Profibus I/O, serial motion
	The SoftPLC controls an automated lab for the dyeing industry. A multi-port serial card is used to talk to a high precision weighing system and to a number of intelligent brushless drives via RS-485. The HMI is a custom Visual Basic program.		
Boiler Control	Fong Chu Textile Co.	New	Redundant SoftPLC in Tealware, Tealware I/O
	A Hot-Standby SoftPLC system controls a boiler system in a textile process, an iFix HMI is used as the operator interface.		
Dyeing Machine	TYDT Corp	New	SoftPLC in Tealware, Tealware I/O
	This advanced shock wave dyeing machine needed very sophisticated PID control, including the stages of rising and falling ramping for the air heating system supplied in the tank of the machine. The advantages of Java in SoftPLC also helped the manufacturer provide powerful integration capability via the plant intranet for recipe control and data management.		

Building Automation, HVAC, and Security Industries

MACHINE/PROCESS	CUSTOMER	1ST SYSTEM	HARDWARE
Greenhouse Controls	Puriponics	New	Tealware SoftPLC, Tealware I/O
	Commerical greenhouse uses SoftPLC for control of lights, water, pH, and temperature. The greenhouse grows algae for health food and medical customers. The operator interface is a built using SoftPLC's embedded web browser that uses Java applets for recipe management, and event and alarm logging to a database.		
Detention Center	Undisclosed	New	Smart SoftPLC, Tealware I/O
	Juvenile detention center expanation project utilized SoftPLC and Web Studio for door controls and monitoring. There are (12) Smart SoftPLC CPU's with local Tealware I/O, all connected via ethernet. (48) 12" HMI's will be mounted in the hallways and at the nurse's stations. To reduce cost, the HMI's are using the Secure Viewer Thin Client feature of Web Studio, connected to a 64K tag runtime at the main monitoring station. SoftPLC products were selected for this project due to flexibility, as well as cost savings over proprietary PLC solutions - particularly with regard to the networked nature of this installation. Case Study		
Building Automation	UltraPolis	Replace Modicon system	Hardbook SoftPLC, Profibus I/O
	This building automation installation controls about 1600 DI, 800 DO, and 100 AI points used for security, temperature control and consumption monitoring. Three Profibus Master I/O Interface cards are used. Previously, the application used (6) Modicon PLC's, but now uses a single SoftPLC.		
Federal Prison	Undisclosed	Upgrade A-B PLCs	Redundant Smart SoftPLCs & Gateways
	The original system included redundant PLC-5's connected to a SCADA system, 1771 and block remote I/O in (7) buildings and SLC-504's in (5) other buildings. The 1st phase of the upgrade was to replace the PLC-5 CPU's and upgrade the SCADA system to communicate on Ethernet instead of DH+. Redundant SoftPLC controllers were installed to run the logic, communicate to the new SCADA system and act as the RIO master to the existing I/O. The SoftPLC also communicated via Ethernet peer-to-peer messaging to the SLC-500's using Smart Gateways as DH+ to Ethernet converters. Future phases will replace the RIO and SLC-500's.		

MACHINE/PROCESS	CUSTOMER	1ST SYSTEM	HARDWARE
HVAC	Bei D Corp	New	Tealware SoftPLC, Tealware I/O
	The company manufactures CD Players. SoftPLC is controlling the HVAC system for the plant, interfaced to an iFix HMI.		
HVAC & Security	Taiwan Fixed Network	New	Tealware SoftPLC, Tealware I/O
	This company is an ISP and mobile phone service provider. The application is to monitor environmental conditions (fire alarm, UPS, water alarm, burglar alarm, backup generator, etc.) and send the information to their main and local control rooms. The company has five locations distributed around Taiwan that are connected by fiber. Using a web camera and some java code in the SoftPLC to implement SNMP traps, the SoftPLC system can trigger live camera images to be seen in the control rooms. Rather than continuous images that the operator could become immune to, the triggered images upon an event were thought to be a more effective solution. SoftPLC was selected for this application because the ladder logic and built-in I/O controls and java capability were much easier to implement and maintain than a custom solution on a PC.		
HVAC & Security	OSC of Houston	New	Hardbook SoftPLC, Interbus I/O
	HVAC, lighting, and door controls for an office building includes 70 PID loops. Via the embedded web interface, tenants can order off-hours heat and A/C, and notices are sent to landlord for billing purposes.		

Miscellaneous Industries

Machine/Process	Customer	1st System	Hardware
Industrial Laundry Tunnel	OEM: EcoLabs, End users: Disneyworld & others	Replacement of GE 90/70	Hardbook SoftPLC, GE 90/30 I/O
	The assembly line includes wash, rinse, dry and fold operations. The previous design used by the OEM utilized GE 90/70 PLC's with an Intellution HMI. This expensive solution had limited communications and networking capabilities. The new design utilized a Hardbook SoftPLC with GE Series 90/30™ I/O, with ethernet communications to the HMI *(which in 1996 was quite unique!)*		
Cathodic Arc Coating	Northeast Coating	New	Tealware SoftPLC, Tealware I/O, DeviceNet, A-Series
	These machines perform a vacuum coating process that uses (4) arc cathodes, which deposit materials such as titanium, titanium nitride, and other on materials *(known as substrates)*, for products such as tool & die tooling, medical implements, blades known as "perfs" for separating grocery bags, and a wide variety of items where the coating is decorative, such as sunglasses. The substrates are coated while the pressure is being maintained at about 10 milliTorr *(there is 760 Torr of pressure on a standard day at sea level)*. The substrates rotate in front of the four cathodes during the coating process.		
Industrial Part Washing Machines	Proceco	New	Tealware SoftPLC, Tealware I/O, serial motion
	The machines are used to wash various parts prior to assembly. Since the different parts are different shapes/sizes, the machine includes very sophisticated motion control and recipe management, along with the normal PLC control. SoftPLC communicates serially to Kollmorgen smart amplifiers for 5 axes control, and also to a PanelView HMI. The system includes a "teach mode" for new parts, where SoftPLC learns from manually positioned nozzles. SoftPLC's huge memory capacity makes it possible to store hundreds of different parts with no on-site setup required by OEM as new parts are added. COMGENIUS was used extensively to easily handle all the serial communications.		
Cellular Telephone Manufacturing	OEM: MTEC (Div of Panasonic) End user: Ericsson	New	Hardbook SoftPLC, Interbus I/O
	In addition to assembling the PC boards for cellular telephones, the PLC system needed to communicate test data via a custom serial protocol to an HP minicomputer. The OEM wrote a TLM using COMGENIUS as a basis on which to implement the custom protocol.		