



## MEDICAL DEVICE / OTC / PHARMA INDUSTRY FULL MANUFACTURING SYSTEMS AND SOLUTIONS

Polytron, is a CSIA-Certified Full Manufacturing Systems and Solutions Integrator, and 2015 System Integrator of the Year. Applying 35 years of manufacturing engineering expertise, we deliver full manufacturing systems and solutions from process to material handling, to packaging and warehousing.

Polytron is uniquely positioned and fully qualified with certified best-in-class systems integration talent and industry expertise to deliver the special requirements for the Over-the-Counter, Med Tech, and Pharma industries.

Polytron maintains GMP guidelines for engineering standards and 21 CFR 11 for control, data handling and validation compliance.

This enables us to provide you with continuous improvement solutions that help you meet your business objectives while reducing risk and improving overall performance in:

- Process Systems and Utilities
- Packaging Systems and Material Handling
- Automation and Controls
- Industrial Network and Security Solutions (INSS)
- Manufacturing Intelligence / MES
- Smart Manufacturing Solutions
- Machinery Safety
- Workforce Development and Training

Polytron offers full engineering capabilities from start to finish: front end engineering discovery efforts; detailed design; construction installation packages; network integration; operator interface design; and system traceability.

Grounded in a Partnership and Trusted Advisor approach, our project delivery methodology provides your company with the value of a strong partnership based on trust – open and honest communications, collaboration, a focus on success for all parties, and a commitment to develop the most appropriate solutions. It is this approach that has established long-term relationships with the majority of our global clients.



## APPROACH TO FULL MANUFACTURING SYSTEMS AND SOLUTIONS DELIVERY

Polytron is your one-stop provider - whether you're in need of strategy, systems, automation, equipment, processes, or training for manufacturing. We deliver project success at a lower risk.

Project Management provides the cornerstone of risk mitigation for your manufacturing projects. When the Project Delivery Team — a cross-functional team of project stakeholders — create the shared vision, promote a “common purpose” through defined project success criteria that align the project team with the business goals, you are able to realize project success: lower risk, shorter startup, and a sound ROI for your business.

Through a clear definition of your needs and priorities from both the business and plant perspective, we develop and deploy your solution through an appropriate blend of system engineering, automation, manufacturing intelligence, and people development – ***Putting Performance in the Hands of Your People.***

### Areas of Expertise

Process, Packaging, and  
Material Handling  
MES / MI  
Smart Manufacturing  
Automation and Controls  
Industrial Network & Security  
Machine Safety  
Workforce Development & Training  
Project Management

### Industries Served

Chemical  
Food  
Beverage  
Consumer Packaged Goods  
OTC / Med Device / Pharma  
Energy



**Clients:** Fortune 500 companies - majority retained over 20 years.

**Our Employees:** 65 Certified Project Managers, Electrical and Mechanical Engineers, IT Professionals, Training professionals and support staff.

## MEDICAL DEVICE / OTC / PHARMA

Polytron has over 34 years expertise in many sectors of the Medical Device, Over the Counter (OTC) and Pharma Industries. Our project experience includes:

- Performance Specifications
- Line Layout Detail Designs
- Equipment/Vendor Evaluations
- Flow Diagrams
- Cost Estimating and Control
- Package Design and Materials
- OEE Estimates/Calculations
- Simulations / Emulations
- Training Stations
- System Assessments
- Piping & Instrumentation Diagrams
- Mass Balance
- Process Equipment Specifications
- Isometric Piping Diagrams
- Batch, Continuous & Advanced Process Control
- Energy Efficiency
- Panel Design and Fabrication
- Installation Documentation
- PLC & HMI Development
- Virtual Commissioning

## NEW LINES / EXISTING LINES

- Complete and Specific Project Management
- Construction Management
- Startup Management
- Added systems to existing lines
- Added new equipment to existing lines
- Line and facility consolidation
- Efficiency improvements / increase capacity
- Complete and Specific Project Management
- Construction Management
- Startup Management

## PRODUCTION AND AUTOMATION

Polytron provides a full range of Medical Device, OTC, and Pharma Industry manufacturing solutions. Our comprehensive solutions offering includes:

- ISA88 Batch Process Control
- Compliant Electronic Batch Records
- Continuous Batch Process Control
- Batch Processing and Recipe Management
- Dry/Liquid Ingredient Storage, Blending, and Mixing
- Advanced Process Control - Internal Model Control / Coordinated Control / Modular Multivariable Controls
- Rockwell Automation PlantPAx (Distributed Control System migration)
- SCADA/PAC/HMI Programming
- Instrumentation - Specifications, Selection and Supply
- Electrical Design and Installation Packages
- Power System Single Lines - Design and Development
- Industrial Network Upgrades / Security
- Control System Emulation and FAT
- MI/MES - Data Visibility from ingredient receiving through packaging, including company-wide performance, recipe management and integration with ERP system
- Track and Trace, Quality Analysis, Compliance Reporting
- Downtime Tracking, KPI Dashboards
- Machine Safety Risk Assessments and Mitigation

## PROCESS MECHANICAL ENGINEERING

- Process Flow Diagrams (PFD) Design and Development
- Piping & Instrumentation Diagram (P&ID) Design and Development
- Configuration of New and Existing Manufacturing Lines
- Facility Consolidation for Production Efficiency
- Construction Management and Procurement
- Process General Arrangements: Tank Farms, Pumps, Skids, etc.
- Process Equipment Specification and Selection
- Process Calculations and Mass Balance
- Mechanical Design and Installation Packages
- Piping Design and Installation Packages
- Isometric Piping Diagrams



## PRODUCT AND PACKAGING

Polytron provides a full range of packaging solutions for the Chemical industry. Our comprehensive solutions offering includes:

- Tablets, Caplets, Liquids, Gels, Suspensions, Powders
- Cans (normal atmosphere and pressurized)
- Bottles - plastic and glass (round & non-round)
- Vials
- Cartons, Blister packs, Bags and boxes
- Full System Packaging Solutions
- Multi-format, High-speed Packaging Lines
- Multi-product Packaging
- Bucket, Barrel, Tote
- Bag, Supersak, Bulk
- ASRS, AGV, Manual, Robotic and Conventional Palletizing
- Warehouse Capacity and Automation Optimization

## Vision Manufacturer Use Case

Polytron was engaged to support and provide Best Practice Consulting for a client team trying to standardize its control programming for a new plant through trial and error.

### Best Practice Standardized Programming

The controls programming for the new vision equipment needed to accept the programming standards created. This equipment delivered 90% of the production and was critical for the company.

Polytron conducted an assessment on the machines and the whole system prior to beginning the programming. Consulting with the Client's inhouse programming group, a review of the existing work was performed. Polytron then developed a standardized programming library and reusable code modules. The team leveraged our expertise to apply a set of best practices to the standards that had already been started by the customer.

Documentation was generated outlining the specifics of the program structure, nomenclature, tags, and standard routines. A functional specification was developed to outline the way to communicate the standard in written code and routines for the new standard. A library of generic routines was built that could be configured and applied to the equipment.

The new code was developed and tested, including simulated load testing where the new library objects were rigorously tested at the expected scale of the final deployment to ensure that the software and hardware would perform as expected.

### Global OEM Management

Polytron performed OEM turnkey management on a global scale. The team worked with the OEMs in Japan and Austria to ensure the programming was pre-loaded on the manufacturer's new machines before the equipment was delivered to the new plant. Language barriers and cultural business differences were overcome to ensure the client's needs were met.

After the new equipment was installed, Polytron supported start-up and post start-up at the new plant.

The new programming was implemented on all lines in the new facility.

### Results

Over a two-year span, Polytron provided hands-on technology support and consulting on the programming project.:

- Supported the migration of the client's existing production code to the new code using programming standards and code modules.
- Provided transition to a new way of creating more smart technology for efficient, flexible and re-usable programming code.
- Allowed the client to leverage the software platform.
- Standardized code and code modules drives efficiency across all machines in multiple locations.



# Putting Performance in the Hands of Your People

## TURN-KEY OPERATIONS SOLUTIONS

Polytron provides a single point of contact for your projects. with a comprehensive solutions offering including:

- Collaboration with your team to create the Functional Design Specification
- Development of the Electrical / Controls and Mechanical design based upon the Functional Design Specification
- Machine/System Integration and Programming
- OEM procurement and management
- Supply of electrical and mechanical hardware and installation
- Onsite support for construction management, debug and system validation
- Documentation and Training for performance continuity

Our certified Project Management Professionals apply a collaborative team approach aligning a comprehensive project team with your project objectives. Using our expert knowledge in best-practices and standards we ensure the highest degree of project success in all areas of the project.

A customized approach to your engagement addresses all the possible variables, and through our project management methodology – the glue that holds everything on the project together – we are able to deliver within project scope, on time and within budget.

*No matter which company I work for or the manufacturing, packaging, or process solution I need, Polytron is my first choice and the preferred partner to which I turn to help me and my employer be successful. Their project management methods are the best in the market. Risk management, design issues, procurement, engineering, start-up issues, everything that goes into a project, is identified, managed, confirmed, documented, and delivered.*

*Instrumentation and Controls Manager,  
Global Manufacturing Company*

## INDUSTRY CERTIFICATIONS AND AFFILIATIONS



Data Management Solutions



Cisco Digital System Integrator



Partner  
Intelligent Platforms



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