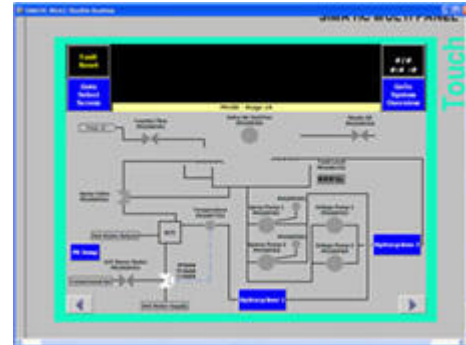


PROJECT SUMMARY

Project Name:	New Paint Shop Process Controls
Total Value:	\$3,197,252
Hours:	Over 17,000
Engineers:	Four (4) – Electrical Design Four (4) – Software Design Six (6) - Commissioning
Market:	Automotive
Manufacturing/Process:	Paint Process
PLC:	Rockwell - ControlLogix
HMI:	Siemens – WinCC Flexible



Introduction:

The purpose of this project was to provide the electrical process controls for the new automotive paint shop located in Mexico.

Objectives:

OTI provided the following services:

- Electrical hardwire design engineering
 - New Phosphate, ELPO, and EMS drawings
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- Modifications to existing paint shop electrical drawings
 - Sequence of operations
 - HMI software design engineering
 - PLC software design engineering
 - Network software design engineering (DeviceNet, Modbus TCP/IP)
 - Capital material
 - Procurement of new capital material
 - Re-use and re-work of existing paint shop capital material
 - Documentation services
 - Field supervisory services
 - Commissioning services
 - Training services
 - Stand-by services

These services were provided for the following control systems:

- Phosphate System
- ELPO System
- ELPO Oven System including Cooling Tunnel
- Prime Booth
- Prime Oven System including Cooling Tunnel
- Topcoat Booths
- Topcoat Oven System including Cooling Tunnel
- Miscellaneous Booths
- Sludge
- Central Humidification
- RTO
- Energy Management System (EMS)

Solution:

A global controls architecture was used wherever possible. A combination of standard panels and custom designed panels were engineered while utilizing the new controls architecture for the Phosphate, ELPO, and EMS systems. These systems also included purchasing all new field equipment such as valves, transmitters, proximity switches, and pressure switches. For the remainder of the systems, only the master control panel and select components were provided as new. Existing control panels from an alternate paint shop were re-used. Remote I/O communication was removed and replaced by DeviceNet communications, with the remaining I/O reused. New ControlLogix PLC programs and Siemens WinCC HMI programs were created for all systems.

The primary focus of the EMS system was lighting control. Square D Powerlink Lighting Control panels were linked to the EMS MCP via Modbus TCP/IP for PLC control.

Outbound Technologies

Process Documentation:	<p>The following is a list of documentation provided by Outbound Technologies in order to exceed the required industry standards:</p> <ul style="list-style-type: none">• Electrical Drawings• Software (PLC, HMI, DeviceNet)• Sequence of Operations / Operations Manual / Training Manual• Vendor Documentation• Spare Parts List• Certifications• Check-Out Forms• All drawings, HMI software, and Operations/Training manuals were provided in English and Spanish
Industry Standards:	<ul style="list-style-type: none">• NEC• NFPA
Project Outcome:	<p>All systems controls performed as designed. The customer and end user were satisfied and OTI's engineering staff with a positive project evaluation. Warranty in first year after installation was minimal with no trips to site for warranty work.</p> <p>OTI was contracted at the conclusion of the project to provide three (3) months of production support for the entire facility, including process conveyors and paint application robots.</p>
