



A Rockwell Automation Company

## Kinder-Morgan, Inc. Station 109 Compressor Station Automation

### The Client:

Kinder Morgan, Inc. is one of the largest midstream energy companies in America, operating more than 35,000 miles of natural gas and products pipelines across the United States. Principal business segments include NGPL, a large interstate pipeline, Kinder Morgan Energy

Partners, L.P, and retail natural gas distribution, which provides sales and services to approximately 240,000 residential, commercial, industrial, and agricultural customers in Colorado, Nebraska, and Wyoming.

### The Requirement:

Kinder-Morgan Inc. (KMI) awarded the Station 109 Compressor Automation project to Hinz. The project consisted of:

- replacing the obsolete MicroVax Supervisory Computer with Siemens PLC logic and a Wonderware 7.1 HMI.
- Replacing serial communication with fiber optic Ethernet communication between Station PLC, Station PLC, and the six Unit PLCs.
- Incorporating new programming to improve maintainability for technicians.
- Adding programming functionality for new pipeline addition and compressor station.
- Providing improved Station operator interface.

### The Design Solution:

Upon award, an on-site kick-off meeting allowed Hinz and KMI to finalize project details, locate instruments and gather field data.

Hinz worked closely with KMI personnel to define control strategies, control system architecture, and required project standards. The logic developed by Hinz performed all the same functions as the MicroVax as well as additional functions for the technicians. It provided standardized logic to facilitate easier troubleshooting and provide familiar programming structure.

Due to memory limitations, it was required the

existing Station PLC CPU be replaced with a Simatic 555.

The Station HMI resides on a Pentium desktop and provides communication to gas control via a modem through a serial port. An additional Ethernet card and hub provides two isolated networks, one for the Station 109 control system, the other to reside on the KMI business network.

The system was tested and simulated at the KMI Lakewood office, prior to the on-time commissioning.



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# Kinder-Morgan, Inc. Station 109

5/28/2004 ████████ Dis Pres 0 Suct Pres 0 Station 109 Control System Units Run 0000 10:42:46 AM  
 Logged In: None Units Avail 0000 PWR LIM 0000

Displays	Logs	Commands	Directives	Sys. Utilities	Log On/Off	Parameters	Help
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Control Disch Press	0 psig	Atmospheric Temperature	0 °F	Station Air Press	0 psig
Control Suct Press	0 psig	Station Suct Temp	0 °F	Instantaneous Flow	0 mmscf/d
Control Diff Press	0 psig	Station Disch Temp	0 °F	Accumulated Flow	676 mmscf
Pressure Setpoint	0 psig	H2O Content	0 .00	Iowa Line Flow	0 mmscf/d

**VALVE CONTROL MODE**  
**NO CONTROL**

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Alarm Clear Directives      Alarms

## System Specifications:

- (1) Station: Siemens Simatic 505 PLC with Ethernet communications to remote I/O
- (6) Unit: Siemens Simatic 505 PLC
- (1) Human Machine Interface (HMI) Dell Pentium PC running Wonderware 7.1 InTouch with two Ethernet ports. TCP/IP Ethernet fiber optic communications between Station PLC, Unit PLCs, and HMI
- (1) Unit: Clark TCV-12 reciprocating compressor
- (3) Unit: Cooper 10W330 reciprocating compressors
- (1) Unit: MLV16 reciprocating compressor
- (1) Unit: Dresser-Rand TCVD-12 reciprocating compressor

For further information or to contact a Hinz office near you, please check our website at:

[www.hinz.com](http://www.hinz.com)