

# CUSTOM ENGINEERING LEVEL III

# COMPLETE SYSTEMS ENGINEERING

From Sensors to Software  
...Only OMEGA® Can Bring It ALL Together!

## A CASE IN POINT

An industrial plant wants to completely automate its process monitoring and control systems into one central location. The plant has three locations within the facility that require process monitoring and control. The three locations are several hundred feet apart.

## PROBLEM

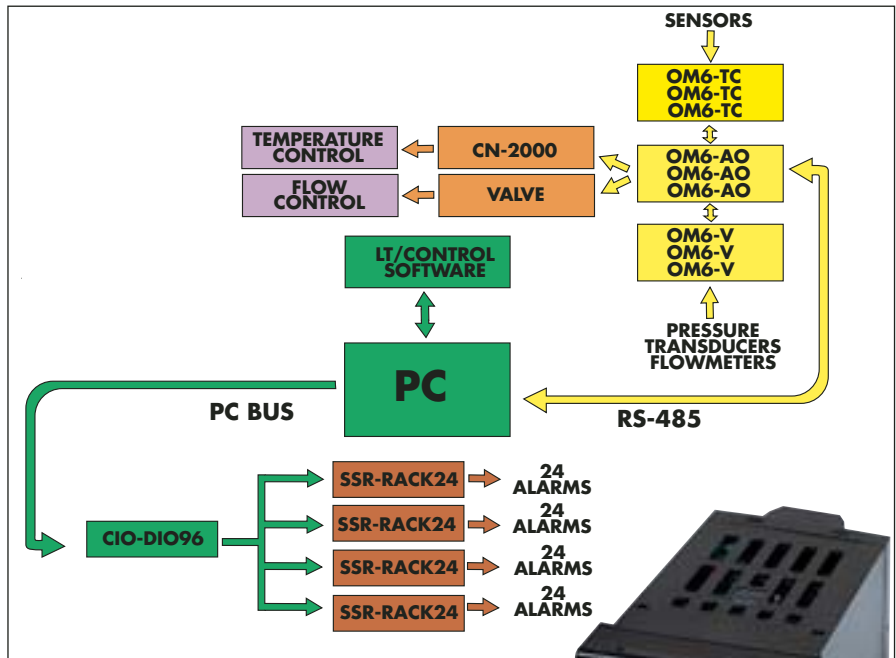
At this facility, measurements are required of the following parameters: five temperatures in the -18 to 149°C (0 to 300°F) range, five temperatures in the 538 to 1649°C (1000 to 3000°F) range, five pressure measurements of coolant fluid, as well as the flow rates of three pipelines.

Requirements for each of the three monitoring and control systems include the following:

- ✓ Display of all parameters in an easy-to-read format on the host computer
- ✓ External alarm capability on all measured parameters
- ✓ Temperature control, based on the three temperature signals
- ✓ Control of the flow rates in each pipeline
- ✓ Additional requirements: The processes' continuous operation is paramount, requiring that the data acquisition/control system be modular or easily replaceable in case of component failure. Also, because the temperature control is critical, it must be switchable from automated to manual control

## OMEGA® SOLUTION

Signal Conditioning for Each Input: Key issues in addressing the inputs are the industrial nature of the process, the need for modularity and the distributed locations of the process. The OMEGA® OM6 modular system accepts the process signals, providing digitized output. The units are individually sealed and are exceptionally well suited for an industrial environment.



The OMEGA® 1/16 DIN MICROMEGA® Autotune PID Temperature/Process Controller

PHONE, FAX OR E-MAIL  
WITH YOUR SPECIAL REQUESTS  
**1-800-82-66342®**  
**1-800-TC-OMEGA**  
Custom Engineering Fax:  
**1-203-359-7890**  
e-mail Custom Engineering  
custom@omega.com



CN77000 MICROMEGA® Series 1/16 DIN controller (\$229) shown with the OS43 Industrial Infrared Sensor (\$1190). Please see Section J for more information on the OS43, and Section P for more information on the CN77000.

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The powerful, menu-Driven LT/Control Software Package Combines Ease of Use with Complete Monitoring/Control Capabilities and Real-Time Animated Graphic Displays

### Monitor Alarms

The use of one OMEGA® CIO-DIO96 digital I/O board with four SSR-RACK24 interface racks and SSR modules provides up to 96 channels of alarms. Each alarm channel can be configured individually to any of the measured inputs.

### Flow Control

Each of the valves controlling the flow rate requires a 4 to 20 mA analog signal. OM6-AO modules provide the necessary signal, along with the necessary signal isolation.


### Temperature Control

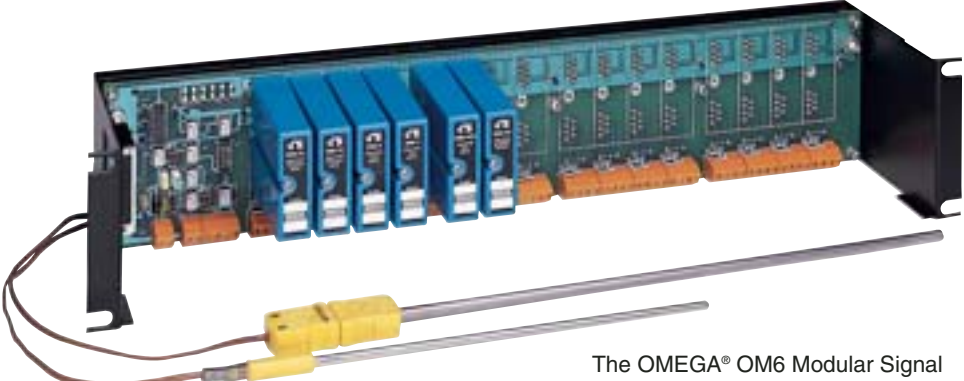
The temperature control requirements dictate manual override capability, so a CN2000 controller with remote analog setpoint is selected. Because branching off a single thermocouple is not recommended, a dual element thermocouple is used. One signal from this probe is used to feed the controller, and the second signal is fed to an OM6 module for computerized process monitoring. The controller's remote setpoint option allows the controller's setpoint to be changed by the computer via an OM6-AO module.

### Software

The recommended software is LT/Control. LT/Control provides a powerful, menu-driven approach to acquisition and control, with the capability to display all parameters graphically. It features animated graphics, PID control capability, event triggering, as well as the required data storage.

### Sensors

In addition to dual element thermocouples, OMEGA supplies all the required temperature, pressure and flow sensors required for this system. After purchase, the customer takes advantage of the toll-free technical support that OMEGA offers, to make sure that the installation is correct, and to receive any additional help in installing and using the various pieces of equipment. 



The OMEGA® OM6 Modular Signal Conditioning System Accepts a Variety of Process Inputs, and Provides Analog Outputs Through Computer Control

The OMEGA® CIO-DIO96 Digital I/O Board Provides Digital Output Capability, to Drive External Alarms, as Well as Enables Computerized Control