

# TURNKEY ENGINEERING SOLUTIONS TO IMPROVE HEAT TREATMENT PROCESS EFFICIENCY



## CUSTOM ENGINEERING SOLUTIONS FOR ANY APPLICATION



Neal Systems' engineers specialize in designing and implementing systems that:

- Record, control, and optimize the use of resources such as electrical power, saving money over the lifetime of the system
- Track the status of process-critical components, such as electrical heater elements, either explicitly or implicitly
- Generate customized maintenance warnings or alarms to allow predictive rather than reactive maintenance, increasing system uptime
- Utilize an intuitive operator interface that allows for faster and easier operations and diagnostics

In the heat treat industry, operational efficiency and reliability is essential to maintaining furnaces and ovens while keeping them profitable.

Maintenance techs, operators, and supervisors need to know when and how critical components become damaged or degraded, and process engineers require insight into how their systems utilize resources.

Baked into our designs are industry-leading products and over 40 years of experience in implementing control systems for our valued customers. NSI engineers will work with you at every step to create a system that fits your needs and your budget. Read on to see how NSI can help you develop a turnkey solution to improve your process.



# Our Solutions

- Cyber Security Solutions
- Industrial Networking
- Centralized SCADA Management
- Custom Enclosure Design and Installation

## Cyber Security

Do you know if you have cyber insurance? What requirements do your customers put on you to keep your systems and their data secure?

NSI has been securing industrial networks for 15 years using managed switches and dedicated cyber security hardware. We use the zones and conduits approach as defined in ISA 62443, which involves segmenting networks into areas of similar security requirements. This allows us, for example, to secure the plant floor network from the business network whilst still allowing traffic to flow.

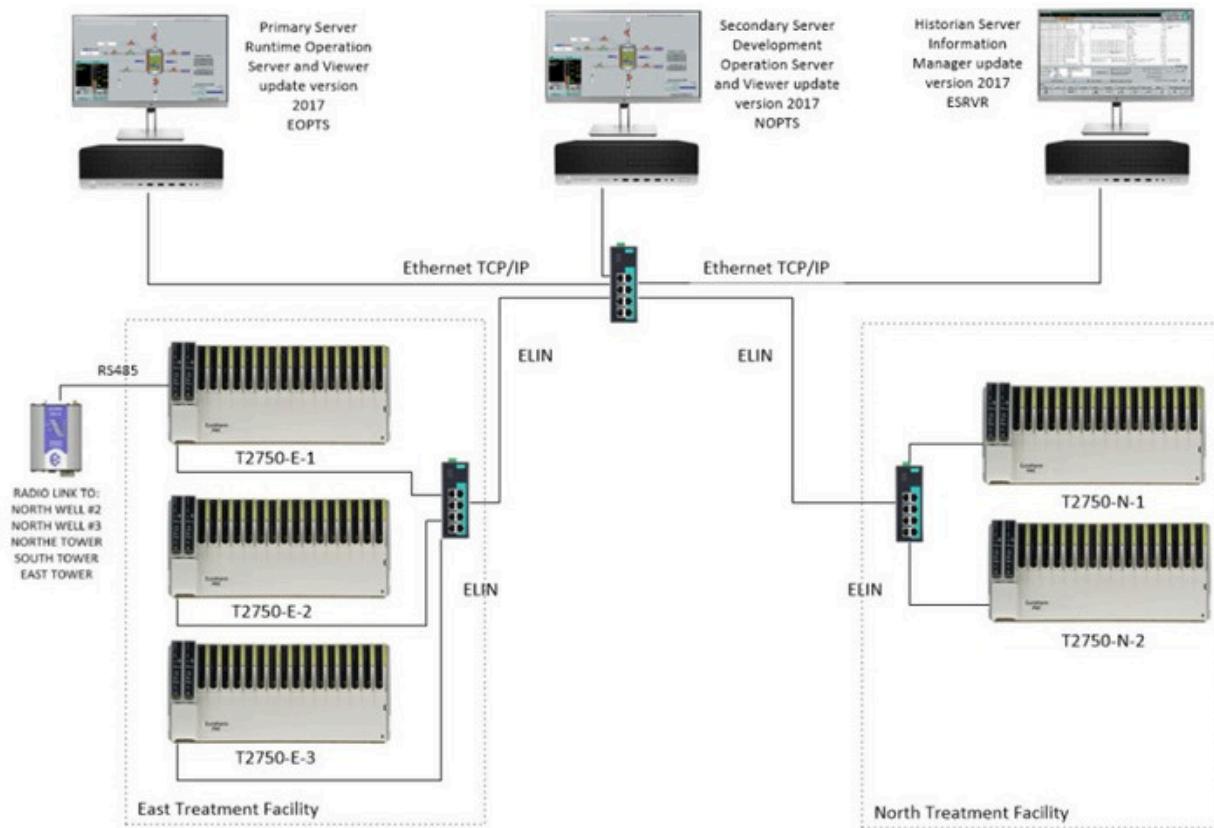


Denial of service prevention, MAC address filtering, deep packet inspection, encrypted configuration files and event logging (either locally or to a Syslog server) significantly hardens your industrial network.

# Industrial Networking

Modbus TCP, EtherNet I/P, BacNet I/P, layer 2, layer 3, managed, unmanaged, fiber, Copper, cloud, MQTT, etc: What do all these terms mean for you, which are important, and which can you ignore?

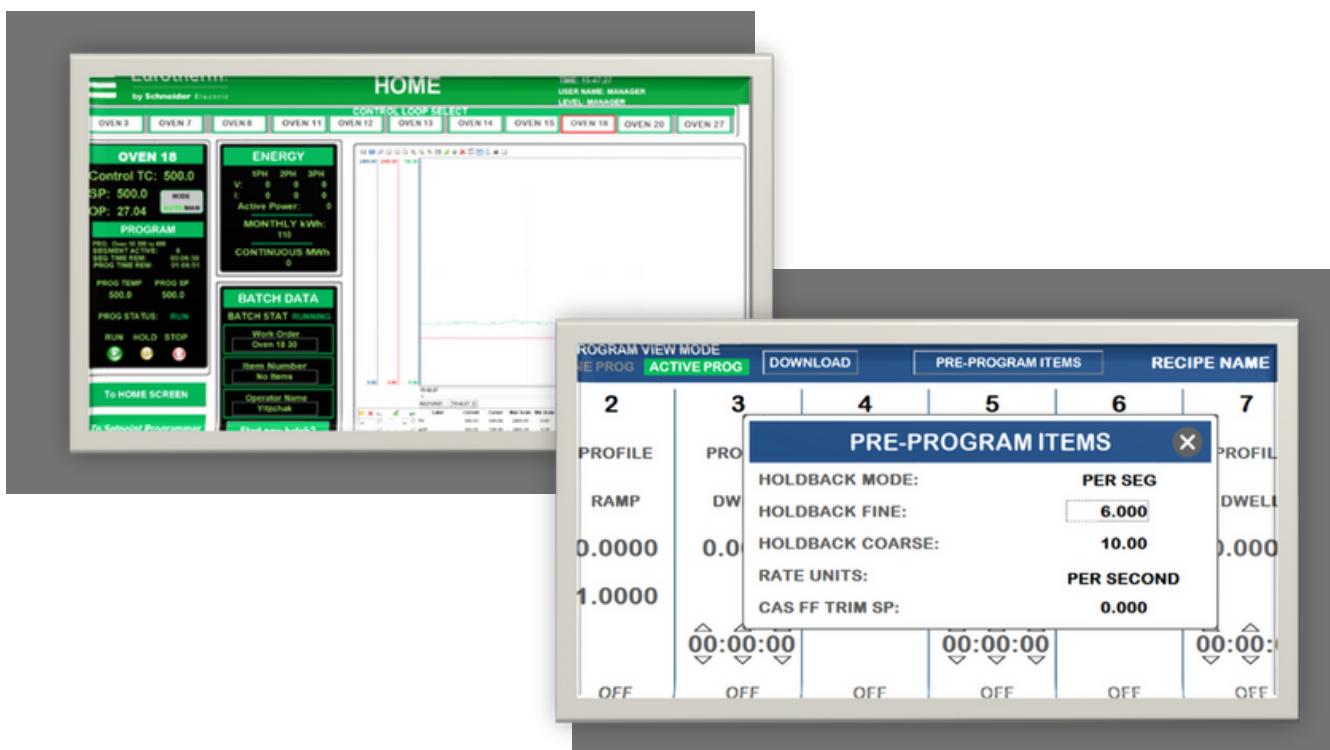
NSI designs and implements customized industrial networks for specific customer applications. Consulting services are provided to IT specialists to help them build, modify, and manage the IT/OT convergence. We use hardened industrial components with wide-range temperature specs and redundant power supplies. Our well-designed architectures can withstand the loss of one component and continue to work, while providing diagnostic alarms that alert the operators to the failed component. We ensure all 'single point of failure' components are identified and mitigated whenever possible.



## Centralized SCADA Management

For multi oven / furnace systems, NSI offer a centralized monitoring recipe, control and alarm management system to connect wider plant and business level systems. This is based on the AVEVA platform and has been customized specifically for the heat treat industry.

- Connects to many Eurotherm controllers in the heat treat environment
- Standardized pre-configured screens for lower development costs
- Centralized access to and management of asset status availability and utilization
- Onward connection to MES and ERP systems
- Cloud connector for view-anywhere capability



SCADA Software Screens

## Enclosures

NSI can design and build custom enclosures that follow the UL standard for the construction of industrial control panels.

### Our Services:

- Custom Panel Creation
- Field Installation/Modification
- Custom Engineering drawings
- Integration with existing field devices
- Electrical Design
- Back-end Support



## How can NSI help each member of your staff?

Senior management	<ul style="list-style-type: none"><li>• Distributed KPI's with cloud integration</li></ul>
Quality control	<ul style="list-style-type: none"><li>• Planned maintenance with highly qualified staff</li><li>• ISO17025</li><li>• Immediate reports issued through our Beamex CMX software</li><li>• NADCAP consulting</li></ul>
Production Supervisor	<ul style="list-style-type: none"><li>• Operational KPI's</li><li>• Centralized alarming</li><li>• Protected operational logs</li></ul>
Engineering	<ul style="list-style-type: none"><li>• Design consultation</li><li>• Process optimization</li></ul>
Maintenance	<ul style="list-style-type: none"><li>• Predictive element failure</li><li>• Thermocouple aging</li><li>• Customizable alerts to conduct maintenance</li></ul>
Purchasing	<ul style="list-style-type: none"><li>• Reduce costs through visibility into upcoming failures allow for preventive rather than emergency maintenance</li><li>• Reduce power consumption and therefore lifetime operational cost</li></ul>
Operators	<ul style="list-style-type: none"><li>• Easy to navigate screens</li><li>• Central control stations</li></ul>



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