

Thermal Processing Control System Upgrade



Malisko Engineering, Inc (MEI) was asked to upgrade a legacy Thermal Processing Furnace control system for a hybrid power systems component manufacturer.

GOALS:

- Utilize all existing field devices and wiring,
- Design the system based on current revisions and releases of the OEM controls hardware and software (Opto22),
- Design a replacement control package and retrofit within a small footprint inside the existing control enclosure,
- Reverse-engineer and reprogram unsupported external commands,
- Simulate new furnace control system offsite before startup and commissioning.

ENGINEERING TASKS AND SERVICES:

- Developed hardware bill of material, panel design, and panel layout,
- Recovered legacy external command libraries,
- Reverse-engineered legacy OptoControl 2.2b code including external command usage,
- Reprogrammed entire strategy with equivalent OptoScript code,
- Reconfigured Temperature Zone PID control to utilize built-in PID functionality of the new SNAP I/O,
- Modified the HMI package to facilitate OptoOPCServer communications via Ethernet (replaced ARCnet communication),
- Pre-built and tested a modular back panel assembly equipped with a Opto22 SNAP-PAC controller and SNAP I/O,

- Demo'd existing controls hardware onsite,
- Cross-referenced, traced, and labeled existing I/O wiring,
- Wired existing I/O devices to pre-built modular back panel I/O assembly,
- Pre-Configured Windows XP PC with all Opto22 control and visualization software and WinKIC Thermal Profiling software,
- Tested existing recipe files and modified as necessary for operational checkout.

PROJECT SUCCESSES:

- Maintained the same look and feel of the original control system (Opto22),
- Utilized Opto22's technical support through Malisko Engineering's involvement in the OptoPartner program,
- New control system was made operational within only two (2) shifts,
- Successfully ran existing thermal profiles following functional checkout.

For More Information, please contact:

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