

INSTRUMENTATION ENGINEERS AND CONTRACTORS

THE OMNI PROCESS PLAN By: Mike Kornas

Many process and automation projects go through various planning stages, with 50%, 75%, and 100% drawing reviews. Input to the designer from the project manager and end users may be provided throughout the projects' development up to the final set of drawings. In many cases, vendor process equipment design and drawings may lag behind the construction documents due to the nature of the design process. Because project schedules are very aggressive, many process packages must be sent out showing only basic utilities to the intended process equipment. Most details are worked out later in final vendor shop drawings.

Often, when project problems are encountered, the larger items are not the issue. It is the small details that often raise project costs, create overtime to meet schedule, and/or delay or hamper startup and commissioning. Most of the time, 480v power, process chilled water, and clean compressed air are shown on the drawings to be roughed in. But often you will find that "little" items were missed, like 110v UPS power to PLCs, the vendor's remote control panel wiring, Ethernet or fiber optic connections and perhaps interfaces to other systems such as BMS. In other cases, larger process equipment requiring intense assembly, remote panels, HMIs, intrinsically safe or XP wiring, and pneumatic tubing to be done by others from shipping splits may not have been accounted for. Add issues with network hardware, design and testing, and multiply this by many pieces of equipment, and you find yourself holding a tiger by the tail. Usually, these issues come to light toward the end of the project, at a time when you should be moving through punch list and into commissioning.

If you're not a true believer, go back and review the process / instrumentation / automation costs on a project and notice how they climb considerably, especially from the middle of the project through completion and close out. There is no silver bullet to remedy every issue that could arise. But there is something we can do. *continued on pg. 2*

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THE OMNI PROCESS PLAN By: Mike Kornas *continued*

Omni has developed a "Process Plan of Control" to assist owners, users and designers with planning and review processes. We use our extensive knowledge and experience to cover every base and ask all the right questions to assist with FAT, commissioning and qualification where and when needed. We work with our clients to ensure that the complete design intent is captured and implemented to the smallest detail, right down to field locations of instruments and panels.

Please contact Mike Kornas or Craig Drabyk at (908) 523-0800 to assist you with your project, large or small.

[Click Here](#) to see the Omni Transmitter article on resolving network problems in our previous issue.

OMNI TECH TALK: Variable Frequency Drives (from the field basics)

Here are some simple but important basics about VFDs we've learned from field experience. On new projects, stick with one quality manufacturer if at all possible. Don't allow vendors to provide whatever they choose. Having ten different drives can be a functional and maintenance nightmare.

Select drives carefully. Ask whether you really need across-the-line bypass, as it will add cost and increase size. If perhaps you really do need bypass, how will you control speed in your process or HVAC? How do you, or should you, communicate with your VFDs? It is different on every project. Consider carefully if you want strict I/O communication or strict data communication such as Modbus; the trend appears to be going with both. I/O controls the drive speed/start/stop. The data or Modbus interface can provide many drive parameters such as speed, temperature, and run time, and can be fully trend-logged.

Lastly, make sure you order or specify your drives with the proper extras such as permissive run relays, CTs, etc. So often there is a mad dash to get the needed parts after the drives are installed at start up. Always have a quality contractor install and start your drives. Check ambient conditions for your installation. Be sure not to mix line and load wiring, and never mix controls with power.

The OMNI Safety Corner

Omni Instrumentation boasts one of the best safety records in our industry, with 8+ years of no recordable incidents. Omni has participated in numerous OSHA VPP projects, and we are ISNetworld approved.



FROM THE PANEL SHOP: UL Certification

In this issue of the Omni Transmitter, we wanted to cover quality custom panel fabrication, specifically UL-certified panels. What is UL certification? Why do you need it? What does it buy a customer? And why should you care?

An important overview note from an engineer's perspective on quality and reliability: the control panel or cabinet, or HMI, is the heart of a control system and a client's interface point. In many cases it is where the PLC, I/O cards, transmitters, VFDs, soft starts and most other critical hardware resides. Most everything outside the panel is wiring, tubing, and field instruments.

BUYER BEWARE of non-UL certified panel shops that produce sub-par quality panels. Omni has been called in on numerous projects to repair or correct basic panel anomalies such as: induction problems (high and low voltage mixed together); intrinsically safe wiring mixed with other wiring (code issue); incorrect or missing grounding (safety/liability issue); panels that overheat and shut down; panels laid out incorrectly that effect hardware within the panel. We are also frequently called upon when control panels that do not meet UL quality standards fail critical inspections by local government officials. Finally, when clients experience ongoing process system issues that cannot be explained, in most cases the problem originates in the control panel.

UL Facts:

- ▶ UL manufacturers are audited quarterly to ensure compliance with the current UL standards.
- ▶ Some jurisdictions and electrical inspectors require control panels to carry UL certification prior to energizing the panel.
- ▶ Components used in construction of a UL Listed panel are UL Certified & have individually received a UL Listing.
- ▶ Accountability & Tractability: Each UL Listed Control Panel has a serial number that can be traced back to a manufacturer.
- ▶ Assurance that UL Listed control panels comply with local government codes.
- ▶ UL Listed manufacturers can be checked and verified online at UL.COM.
- ▶ UL Listed control panels are held to the highest standards and quality assurance.

