

INSTRUMENTATION ENGINEERS AND CONTRACTORS

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SELECTING A LEVEL SENSOR

When selecting a level sensor, there are numerous factors that must be considered to determine the appropriate instrument for your application.

These include medium, temperature, pressure or vacuum, chemistry, dielectric constant, density, agitation, noise, vibration, mechanical shock, and tank size and shape. Once these attributes have been determined, they should be taken into account when answering a series of questions:

- ⇒ Can the level sensor be inside the tank, or should it be completely external?
- ⇒ Must the sensor detect the level continuously, or will a point sensor (indicating levels above or below the sensing point) be adequate?
- ⇒ Can the sensor come in contact with the process fluid or must it be located in the vapor space?
- ⇒ Is direct measurement of the level needed or is indirect detection of the hydrostatic head (which responds to changes in both level and density) acceptable?
- ⇒ Is tank depressurization or process shut-down acceptable when sensor removal or maintenance is required?

Other considerations include response rate, ease of calibration or programming, and mounting requirements or constraints, and user preferences. Once you have narrowed down your choices, make sure you purchase a high-quality instrument from a reputable manufacturer. As always, double- and triple-check your model number before you order!

There are many different design variations, and this guide only serves as a starting point for choosing your level sensor. If you have questions or need help selecting a level sensor, call Chris Czubowicz at 908-523-0800.



CASE STUDY: Project Problems Resolved

Omni Instrumentation was recently called in to address problems with a new Foundation Fieldbus installation at an existing water treatment facility. The client had encountered a puzzling combination of issues during the startup and commissioning process. Some of these issues were easily identified, but most could not be readily explained or diagnosed.

Upon initial review, Omni learned that the controls portion of the project was separated into two phases being performed by two separate contractors. We quickly took action to coordinate the efforts of the two contractors through both phases to ensure that the system would function properly in the end. Corrective action, or "CAT" teams, were formed to identify and resolve existing installation issues, and NIC (new installation) crews made certain that installation guidelines and manufacturer-recommended procedures were being followed. These teams met at the end of each day to review what had been completed, what remained open, and what needed attention from the CAT team.

With Omni's guidance, the installation was thoroughly re-inspected and corrections were made as needed. Power wiring with low voltage and control signals were separated within cable trays to prevent noise and induction problems. All terminations on instruments and control valves were checked and corrections were made, ensuring that insulation was properly stripped and all wiring strands were under the termination plate. Proper grounding of power to control panels, equipment grounding, and draining of shielded wire were inspected in great detail. FOUNDATION fieldbus connections and terminations were checked and verified as well.

Once all re-inspections and repairs had been made, continuity checks of all wiring and tubing were performed and documented, and networks were checked and certified. Loop check and calibration were performed and documented with the owner's oversight and involvement.

Time was running low on the project schedule, so it was important that the startup and commissioning phase proceed efficiently. Systems were started one by one, beginning with the main utilities and working down through pumping and control valve systems. This time, through organized teamwork and efficient problem-solving by all contractors and engineers involved, startup and commissioning went smoothly, and the facility was brought online on-time to the client's satisfaction.

Omni Instrumentation is highly regarded for our expertise and experience in troubleshooting and repairing problematic systems. We are certified in FOUNDATION fieldbus, PROFIBUS, and DeviceNet, and can solve any of your control issues. If you have questions regarding your network systems, please call Chris Czubowicz at 908-523-0800.

The OMNI Safety Corner

Omni Instrumentation boasts one of the best safety records in our industry, with 9 years of no recordable incidents.

Omni has participated in numerous OSHA VPP projects, and we are ISNetworld approved.



FROM THE PANEL SHOP:

Listening & Collaborating With Your Clients

By Chris Czubowicz

A waiter approaches a man seated at a table in the finest steakhouse in Manhattan. "I'll have a steak, please, and some side dishes," he says. "Oh, and a bottle of red wine." The waiter nods. "Yes, sir," he replies, giving a polite bow as he turns to walk away.

Hold on, now. How can the waiter presume to know that the man prefers a medium-well ribeye to a rare filet mignon, or that he is allergic to potatoes, hates mushrooms, and has a particular fondness for cabernets from Argentina? In fact, he can't. And what are the chances that the man will be completely satisfied with the meal the waiter brings him? Probably slim to none.

When an instrumentation and controls contractor is hired to build panels for a project, they are usually supplied with drawings or specifications. Naturally, any contractor can approach a project based solely upon these documents, but the wisest clients and contractors know that specs and drawings can never give an accurate picture in its entirety. Without good communication, just as the man in the restaurant scenario will be disappointed with his meal, the customer will be dissatisfied with his control panels.

Asking insightful questions and really listening to the answers is truly an art. It is not uncommon for us to hear a client say that one of their biggest frustrations when dealing with contractors is that they fail to fully understand how their final "product" will be integrated into a facility and utilized on a daily basis. When building control panels, we view supplied documents only as a good starting point, because building strictly from drawings or specs can lead to problems in the field for the user. Like any good contractor, we understand that the most valuable information will be gleaned through customer input and a thorough understanding of their needs.

Omni brings years of control panel experience to every client's table. Through our expertise and the fine art of good listening, we have successfully provided control panels for countless satisfied clients who can attest to the fact that, through effective communication, we can almost invariably make useful improvements that go above and beyond original specifications to give them exactly what they need.



If you have any questions regarding vendor panels, please call Chris Czubowicz at (908) 523-0800.