

## Inside This Issue:

- ❖ Benefits of Electrical Single-Sourcing
- ▶▶ OMNI Tech Talk: Sub Metering
- ❖ Tech Tidbit: Advances in Wireless
- ▶▶ Safety Corner: OSHA VPP
- ❖ From The Panel Shop: PLC Advantages



## The Benefits of Electrical Single-Sourcing by Craig Drabyk

There are numerous subspecialties in electrical contracting - power distribution, lighting, tele-data, A/V, fire, security, fiber optics, process control, instrumentation, etc. - and it is not uncommon to have four or five different electrical contractors on a single project. This often leads to a “too many cooks” scenario that can be highly problematic, particularly on fast-paced renovation projects. With electrical systems becoming more and more integrated, it makes better sense for clients to rely on one or two capable multi-discipline contractors, rather than many, for improved project coordination, scheduling, communication, and overall job costs (not to mention less finger-pointing when problems arise).

Today’s building automation systems are highly-sophisticated, and it is to a company’s greatest benefit to entrust their building systems to an established sole-source contractor that is well-versed in not only the BAS itself, but in all of the various systems, instruments, software, hardware, and protocols under its operation. Omni has thirty years’ experience in all of the aforementioned, as well as control panel design and fabrication and process control troubleshooting.

**Omni, meaning “all”, was named to reflect the full range of services we offer.** Omni is led by an experienced team of electrical and instrumentation engineers, and we have built a longstanding reputation in our wide and highly-technical field of expertise.



## Omni

112A Sylvania Place  
South Plainfield, NJ 07080  
PH - 908.412.7130  
FX - 908.412.7131  
[www.omniinst.com](http://www.omniinst.com)



OMNI  
INSTRUMENTATION  
SERVICES, INC.

## INSTRUMENTATION ENGINEERS AND CONTRACTORS

### OMNI TECH TALK: Sub-Metering

It wasn't very long ago that most building tenants enjoyed unlimited access to electricity, gas, and water and only had to worry about paying their rent. Inefficiencies and waste could not be easily identified, and there was little incentive for tenants to conserve. Property owners found a solution in sub-metering tenants' utilities and billing them for what they consumed. Today, sub-metering has evolved well beyond its original purpose and is used within individual facilities at increasingly granular levels.

Nowadays, building managers use sub-metering for managing energy, identifying problem areas, and improving efficiency. They are often integrated into building automation systems, allowing for real-time automated control.



Sub-meters are used for individual building systems and components like lighting, chillers, pumps, and air handlers to identify system and equipment abnormalities and operational inefficiencies. They can be used to measure domestic water, chilled water, steam, and compressed air. Cooling tower water is frequently metered to identify malfunctions and minimize overconsumption. On the process side, sub-meters are used to measure clean compressed air, nitrogen and various other specialty gases.

**Proper calibration is important to ensure the accuracy of sub-meters,**

and there are various software and system choices available. Important features include the capability of collecting, storing and analyzing data from multiple meters and the ability to generate load profiles for each sub-meter. Many include cost comparison capabilities based on utility rate structures. Use of sub-meters also allow buildings to qualify for utility rate programs that require detailed, accurate data in order to participate.

### TECH TIDBIT: Advances in Wireless

In years past, wireless transmitters were usually only used in hard-to-reach areas, such as tank farms, in extreme or corrosive environments, or on moving machinery. Nowadays, wireless technology, having been proved safe, reliable, and economical, is being widely used in a variety of building automation applications. **Wireless systems are easier to install and offer greater flexibility than traditional networks, and maintenance costs are substantially lower.** Many devices store energy in a micro photo cell, eliminating the need for battery changes.

### The OMNI Safety Corner

**Workplace safety is vitally important at Omni, and protecting the health, safety, and welfare of our clients and employees is our #1 priority.**

Omni has participated in a number of OSHA VPP projects and is ISNetworld approved.



## INSTRUMENTATION ENGINEERS AND CONTRACTORS

### FROM THE PANEL SHOP: PLC Advantages By Mike Kornas

Programmable logic controllers, or PLCs, have been used for many years for their ease of use and reliability. PLCs are considered the superior option for mission critical applications and thus are frequently used in process control, critical HVAC applications, central utility plants, cogeneration plants, sewage treatment plants, mass transportation, transmission line control, and various other applications. Even though PLCs have been around for more than fifty years, continual advances are being made to the technology. PLC systems offer numerous advantages and benefits over wired controls, and disadvantages are few.

#### Advantages include:

**Flexibility** - one PLC can run many machines while providing advanced control.

**Space saving** - today's smaller PLCs can have numerous contacts for each coil, and many relays, timers, counters, and other functions can be added.

**Programming / reprogramming** - changes and error corrections can be done quickly and easily

**Cost effective** - PLCs are less expensive than the contacts, coils, timers, and installation required for wired relay-type panels

**Testing** - PLCs can be factory-tested and validated, saving time in the field

**Troubleshooting** - circuit operation can be observed onscreen, simplifying troubleshooting

**Rugged** - today's PLCs can be ruggedized to withstand severe environments



### Ruggedized Laptops



Ordinary laptops cannot not withstand the harsh conditions encountered in various environments and will quickly succumb with exposure to moisture, dust, vibration, extreme temperatures, and rough handling. Sudden failure in the field can cause huge headaches and project delays. Ruggedized laptops and other devices were developed to allow the reliable operation of otherwise-delicate electronics and avoid costly problems. Although they cost more than standard laptops, they are far less expensive in the long run when used in harsh environments. (photo courtesy General Dynamics Itronix)

**Ruggedized laptops are available in different grades, depending on the severity of the environment.** Fully-rugged models offer such features as fully-sealed magnesium casing and keyboard, shock-mounted hard disk drive and keyboard, and scratch- and shock-resistant screens. Some can withstand up to a six-foot drop or brief submersion in water. Because a rugged laptop is sealed and can't utilize fans or air vents, an internal cooling system is used to reduce heat, though internal heaters can be added for use in below-zero environments.