The OMNI Transmitter

JULY 2015 NEWSLETTER

- INSTRUMENTATION
- ELECTRICAL SERVICES
- CONTROLS

INSTRUMENTATION ENGINEERS AND CONTRACTORS

Inside This Issue:

Integrated Systems Installation By Craig Drabyk

The landscape of low-voltage building systems is changing dramatically. Technological developments and software advances have created a shift to the fully-integrated, interdependent high-performance building system. Integrated low-voltage (120V to 250V) systems offer greater energy efficiency and significant cost savings to the end user.

In the past, BAS, fire alarm, security, lighting control, and CCTV operated independently as separate subsystems, with little or no communication with each other, and installation and service were handled by separate contractors. With today's integrated low-voltage systems, lighting systems are linked with occupancy sensors, a swiped security badge can activate an HVAC system, or a fire alarm can trigger security cameras in an affected area. There are numerous low-voltage building management solutions available, including Honeywell EBI and Siemens Desigo, which integrate various systems at the front-end software and graphics level. Demonstrations are available online.

The trend toward building systems integration has created a need for single-source, specialized contractors that can design, install, and service low-voltage systems and work with power distribution systems. Omni's long-time specialization in power distribution and integrated control has positioned us to provide clients with a superior total-care solution.

OMNI INSTRUMENTATION SERVICES, INC.

Omni
112A Sylvania Place
South Plainfield, NJ 07080
PH - 908.412.7130
FX - 908.412.7131
www.omniinst.com

The OMNI Transmitter

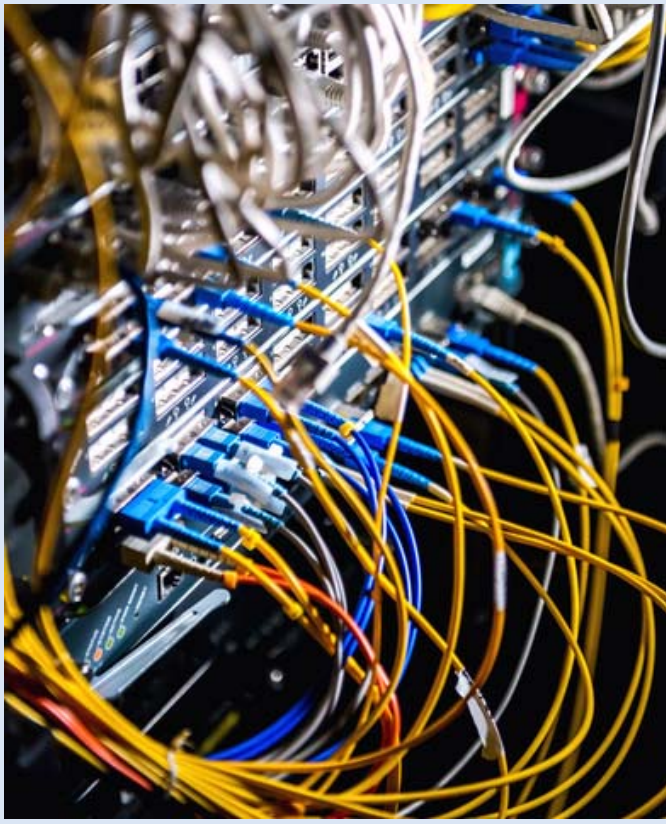
JULY 2015 NEWSLETTER

- INSTRUMENTATION
- ELECTRICAL SERVICES
- CONTROLS

INSTRUMENTATION ENGINEERS AND CONTRACTORS

OMNI TECH TALK: Fiber Optics - Go To The Light

Fiber optics is a technology that uses optically-pure glass or plastic fibers, as thin as a human hair, to transmit digital data coded into light signals. Modern fiber optic cables, made up of hundreds or thousands of these flexible fibers, are capable of transmitting high-speed data over long distances. They are used in a wide variety of applications that include internet, voice, and video transmission, and are frequently used in network communications for building automation and security systems.



An optical fiber consists of an individual glass core surrounded by cladding layer of material, usually acrylate polymer, that reflects light back into the core, allowing signals to travel along the fiber. A buffer coating is added to protect the fiber from moisture and damage. These fibers are bundled and surrounded by several layers of protective sheathing to form a fiber optic cable. A fiber optic relay system consists of a transmitter, which produces and encodes the light signals, the optical cable, and an optical receiver, which decodes the signals. An optical regenerator may be necessary to boost signals over long distances.

Optical cable offers numerous advantages over traditional copper cable. It provides greater bandwidth, travels at higher speeds over greater distances, and is extremely secure. Unlike copper, it is nearly impossible to tap, does not radiate signals, and splices are easily detected. Fiber optic cable is highly resistant to electromagnetic interference, making transmissions virtually noise-free. It is lightweight, thinner and more durable than traditional cable, can be submerged in water, and is less susceptible to temperature extremes. Optical cable costs continue to drop rapidly, and fiber optics provide greater value in the long run. Installation should always be performed by a qualified fiber optics professional like Omni.

TECH TIDBIT: Wireless Controls

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.

Omni : 112A Sylvania Place South Plainfield, NJ 07080 : PH - 908.412.7130 : FX - 908.412.7131 : www.omniinst.com

The OMNI Transmitter

JULY 2015 NEWSLETTER

- INSTRUMENTATION
- ELECTRICAL SERVICES
- CONTROLS

INSTRUMENTATION ENGINEERS AND CONTRACTORS

FROM THE PANEL SHOP: Startup / Field Tuning By Mike Kornas

Though most new control systems are factory-tested and arrive with pre-programmed graphic interfaces, they must always undergo field tuning to react to real-life variables. This process should include field check, calibration, loop tuning, and field adjustment to ensure proper operation and prevent future system problems.

Omni recently completed a large mission-critical installation that involved several reheat skids.

Remote transmitters had to be wired back to the systems control panel. Technicians predetermined the optimal locations for differential pressure, temperature, and flow transmitters to ensure that pertinent information was properly transmitted and received by the system. The remote instruments also required 3-point calibration and the system required tuning. When the reheat skids could not maintain their 165F set point, Omni techs were able to correct the problem through proper calibration and loop tuning. Issues with level transmitters installed on DI water tanks were solved, as well, with small parameter changes to sequence of operation.

Network Certification

Network certification is vital to its future system reliability and performance. Network- related issues are notoriously troublesome and complex to diagnose, and if the crucial step of network certification is omitted, a multitude of costly and often show-stopping problems can arise. Oftentimes when Omni is called in to troubleshoot network issues, it is immediately apparent that the network had never been certified, either because the client was never advised to require it, or the installing contractor purported to have certified the network but failed to do so.

Network segments should be pretested before connecting instruments to rule out trunk and backbone hardware issues if problems arise during device installation. All devices must be installed, powered up and commissioned before certification can commence to avoid inaccurate readings. Clients should receive all documentation to serve as a baseline if network problems or faults occur in the future.