

Three-Way Partnership Brings Trusted Wireless to AMETEK/Drexelbrook

by Randy Klassen

On May 20, 2004, AMETEK/Drexelbrook, a Horsham, PA based manufacturer of point and continuous level products, unveiled its first private label wireless products during its annual sales gathering.

James Visnic, VP & GM of AMETEK's Sensor Technology Division, opened the morning session by announcing to over 80 attendees that AMETEK/Drexelbrook will now offer a wireless product line to complement their existing line of level detection products. He also indicated this launch is a crucial step along the path towards embedding wireless into AMETEK/Drexelbrook devices.

David Strelec, Director of Sales & Marketing for AMETEK/Drexelbrook, explained how his company had partnered with OMNEX Control Systems and Phoenix Contact to achieve the private label agreement. Strelec outlined the role each partner will play, explaining how AMETEK/Drexelbrook's sales channel will benefit from OMNEX's industrial Trusted Wireless technology and be supported by Phoenix Contact's global logistic resources.

On hand from Phoenix Contact were Mark Stevens, VP of Marketing & Communications and Davis Mathews, the US Interface Product Manager. Randy Klassen, Sales & Marketing Manager for OMNEX Control Systems, was also present. Randy, together with Davis, delivered a four hour wireless training session to the group.



The first private label wireless I/O to appear in the AMETEK/Drexelbrook catalogue will be the one-way pipe and DIN rail mounted products (left) that OMNEX has been manufacturing since 1999. As AMETEK/Drexelbrook's sales force become better acquainted

with wireless, other OMNEX radio products will be added to their line up and steps will be taken to embed Trusted Wireless technology in AMETEK/Drexelbrook's next generation of level detection devices.

OMNEX Control Systems is proud to be affiliated with these two partners and strongly believes that the amalgamation of its Trusted Wireless RF technology, Phoenix Contact's superior industrial packaging solutions and AMETEK/Drexelbrook's solid line of level detection devices will prove to be an industry-leading combination.



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From Everyone at OMNEX, have a great summer!



Understanding Radio Communications

Multi Path Fading

by Åke Severinson

What happens to radio communications when you cannot see from one antenna to the other? Is there an easy way to address the issue? Since radio communications are achieved by using electro-magnetic waves, can we understand obstructions by considering how water or sound waves deal with obstacles?

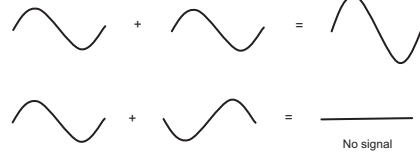
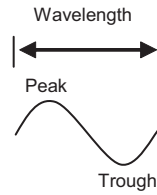
Let's start with a sound analogy. Communicating with radios that do not have "line-of-sight" is very similar to calling for your kids in the house when you cannot see them; they can still hear you - if they choose to - because your voice waves bounce around the walls and the sound fills the house. In a similar fashion, radio waves also bounce off reflective objects. Metal surfaces are the best, but concrete buildings, loose steel structures, rounded storage tanks and cars cause reflections as well.

Is your message as loud when it reaches the listener after bouncing around the house? Of course not. "Signal loss" occurs when you rely on reflections. Also the communication distances will be shorter when radio waves are bounced rather than sent line-of-sight between two antennas.

Back to the water reference. A complication enters the picture when there is more than one reflection. And just like having multiple obstructions in a lake, multiple reflections give radio waves more than one path to get from transmitter to receiver. This is referred to as multi-path.

Radio waves, like water waves, have peaks and troughs. The distance between two peaks (or two troughs) is called the wavelength. How far apart are the peaks and troughs of a typical

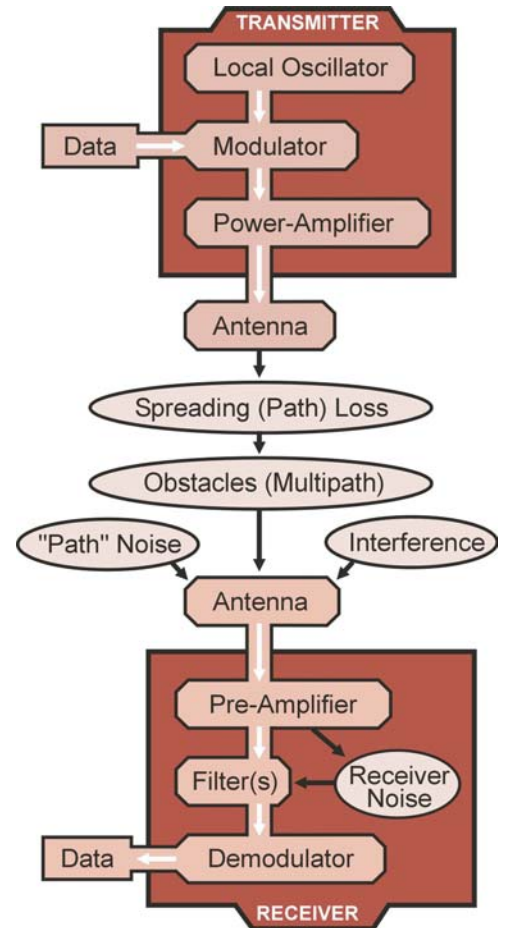
OMNEX 900 MHz radio? At this frequency, the wavelength is about one foot long (calculated as the speed of light (186,000 miles per second) divided by the frequency. So within a foot, the 900 MHz wave will have



one maximum peak and one minimum trough. When reflections influence the radio waves coming toward a receiver along different paths, the receiver will see the combined strength of the two one-foot waves. At one extreme, the combined strength of the two waves can be twice any single wave (if the wave maximums align). At the other extreme, if one max (peak) aligns with a min (trough), just like water waves, the radio waves will cancel each other out. This is referred to as destructive multi-path fading. When your cell phone experiences a "dead zone" this is sometimes the cause. And you've probably figured out - via common sense - that you can fix this wave problem by moving to a location where the two radio waves do not come together with opposing phases.

But what if your radio is "fixed" in its location and can't move? Are you stuck with permanent multi-path fading problems? Not if you use OMNEX's frequency hopping spread spectrum radio technology. Interestingly enough, by changing frequencies - and therefore changing wave-lengths - you get the same result as changing locations. The waves no longer cancel each other out because you've changed the wavelengths and therefore, the alignment of the peaks and troughs. So, one of the benefits of frequency hopping is that your radio will not get stuck in a destructive multi-path fade.

Fig. 1



The flow of data from transmitter to receiver and the factors that influence its integrity



New Product Spotlight - Origa Accessories

by Karin Micheelsen

OMNEX prides itself on being a customer-driven company and readily acknowledges that many of its products have been born from a combination of customer needs, recommendations and OMNEX's own engineering ingenuity. Proof of such collaboration can be seen in the latest ORIGA accessory releases.

The Dash-Mounted Cradle (right) and the T100/T110 All Weather Pouch (on page 4) - the most recent additions to OMNEX's line of Origa products.



Dash-Mounted Cradle

Responding to the need for a T100/T110 battery re-charger/docking station, OMNEX developed the Dash-Mounted Cradle. Designed to be mounted directly to the dash board of the operating vehicle, the cradle can charge the transmitter from either the ignition or battery (10-30VDC), providing a fully charged unit upon arrival on the jobsite. It is also

July 2004



Calendar of Events & Tradeshows

- **July & August**
We take a well-earned rest from speaking engagements, trade shows and travel to enjoy the summer, but rest assured, the production of superior trusted wireless products continues year-round!
- July 1
OMNEX closed for Canada Day

August 2004



- August 2
OMNEX closed for BC Day

September 2004

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

- September 6
OMNEX closed for Labour Day
- September 19-22
AREMA Conference & Exhibition
Opryland Hotel
Nashville, TN
See our products at the Phoenix Contact Booth # 501
- September 19-23
Intelec 2004
Hyatt Regency Chicago
Chicago, IL
See our products at the Phoenix Contact Booth

OMNEX Growth - by Lise Maass

OMNEX receives Government of Canada support for its trusted wireless technology development

Industrial wireless is an emerging industry with technological advances being made all the time. OMNEX believes it is at the forefront of these advances. We also believe that there is excellent market growth potential for industrial wireless solutions provided certain barriers in the marketplace are overcome. The most notable barrier is the skepticism regarding radio performance and reliability. To help remove this barrier we have committed to both further investment in trusted wireless technology development and continued ongoing efforts to create awareness regarding the existence of reliable wireless solutions companies such as OMNEX can provide.

To assist us with our technology development, OMNEX has received a \$7.5 million (CAD) investment from Technology Partnerships Canada (TPC). This investment is part of a \$25-million (CAD) R&D project being undertaken

by OMNEX to further develop our trusted wireless technologies and products. TPC is a special operating agency of Industry Canada, created to provide funding support for strategic R&D projects that are expected to produce economic, social and environmental benefits for Canadians.

OMNEX feels that continued R&D spending is essential and therefore intends to continue to develop solutions that satisfy a number of diverse and challenging requirements imposed by the "mission-critical" nature of industrial applications. In the industrial environment, wireless links must perform as intended and be as safe and dependable as hard-wired connections. Unlike such consumer wireless products as cell phones which promise "best efforts" in performance, trusted industrial wireless products must guarantee operational dependability and safety and must also tolerate high levels of interference. They must operate in unlicensed spectrum bands and be quickly and reliably installed by users who may not have a specific background in radio systems.



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New Product Spotlight - Origa Accessories cont'd

possible to run the equipment from the cradle if the batteries are completely dead or damaged. (Only AA Ni-Cad batteries can be used in the transmitter with this charger).

All T100 and T110 transmitters are now sold rechargeable, and customers should note that previously purchased units may not have this capability. Please contact our Customer Service department (1-800-663-8806) prior to purchase of the dash cradle to ensure compliance with older transmitters.

T100/T110 All Weather Pouch

OMNEX now offers a protective nylon and vinyl pouch for T100 and T110 transmitters. Intended for industrial environments, the pouch is designed to prevent moisture, dirt and dust from clogging buttons and interfering with the electronics. The clear vinyl keypad cover is pliable and allows for the easy depression of buttons through the cover. The pouch even comes with its own floatation device - the foam tricort lining will keep the transmitter afloat should it fall into water!

There are two pouches available, one that accommodates a belt-clip backed T100 or T110, and one designed specifically for the Dash-Mounted Cradle mentioned earlier.



All-Weather Pouch

Important Contact Information

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