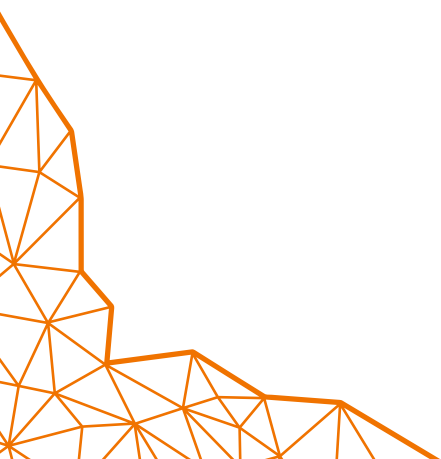




Case Study

Industrial Automation

Production Environment Surveillance
Fiber Optic Sensors

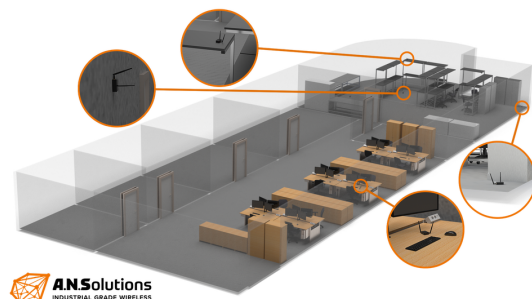




Production Environment Surveillance Fiber Optic Sensors

About COMEM Optocon

Since 1993, COMEM Optocon GmbH has been manufacturing fiber optic technologies for physical measurement systems using Gallium Arsenide. These fiber optic sensors are used to measure temperature in high-voltage or strong magnetic environments.



Tino Schurzmann - Product Line Manager at COMEM Optocon

"Evaluating existing radio technologies revealed that A.N. Solutions provided the most valuable radio performance, thanks to the combination of its antenna diversity feature, narrowband radio technology, robust PHY and MAC layers, and the simple network setup enabled by the SmartMACSuite firmware. Convinced by A.N. Solutions, we started the project without a clear plan—simply using the existing technology. The support we received demonstrated great expertise, guiding us to a valuable target specification within just a few hours. Now, with the system running smoothly, we had to access the Linux machine hosting the database for the first time—only for a security update. This implemented system continues to work flawlessly, truly a 'fire and forget' solution.

Dear A.N. Solutions team: This project has been and continues to be a pleasure for us. The next project is coming!"



Ensuring Stable Production with AN-Solutions Technology

To achieve a reliable and efficient production process, COMEM Optocon evaluated various technological approaches to enable a suitable companion surveillance process. Due to security concerns—such as infrastructure interdependencies, long-lasting self-contained operation times, and flexible sensor deployment—quite a few wired and wireless mainstream technologies were not appropriate. After an in-depth system concept analysis, A.N. Solutions' wireless system offerings, combined with profound embedded sensing expertise, proved to be the ideal choice, offering scalability, robustness, seamless integration, and a comprehensive hardware ecosystem.

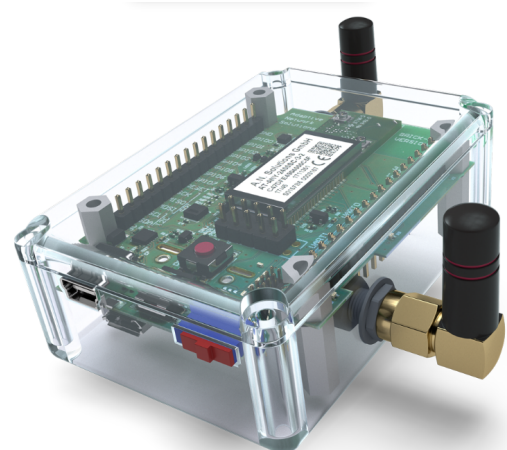
Optimizing Environmental Conditions for Sensor Manufacturing

The manufacturing process of fiber optic sensors relies on precise environmental conditions, particularly temperature and humidity. By integrating A.N. Solutions' wireless condition surveillance concept, based on AT-ANY2400SC-3 technology, COMEM was able to continuously monitor these factors, ensuring optimal conditions for adhesive application and streamlining production.

Stable Production – Proven in Long-Term Deployment

Using AT-ANY2400-3 radio modules—including the antenna diversity feature—within the self-contained, battery-powered BRICK platform, complemented by embedded environmental sensing and data commissioning capabilities, in combination with a tailored SBC (Single Board Computer) infrastructure, proved to be the most scalable and flexible solution, effectively addressing the unique conditions at the COMEM Optocon production site.

The pilot deployment, involving multiple BRICK sensing nodes, reliably captured crucial environmental data from the production process over more than 12 months. This data benefits COMEM Optocon in two key ways:



Module AT-ANY2400SC-3

Short-term impact: They receive preventive alerts before targeted environmental conditions exceed their limits, helping to avoid material waste.

Long-term impact: The data reveals when and how heating energy should be adjusted to maintain stable and productive conditions.

By leveraging A.N. Solutions' intuitive wireless networking technology and expertise, COMEM Optocon has successfully enhanced process stability, reduced costs, and increased production efficiency.





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