Industrial-grade, high-performance sensors are vital to an effective remote monitoring strategy. Whether sourcing sensors directly from the manufacturer or a third-party reseller, look for the following features to ensure that the sensors you are adding to your Industrial Internet of Things (IIoT) ecosystem make the strongest possible contribution to your remote monitoring effort.

1. Ruggedization and Reliability

Industrial-grade sensors are often **exposed to harsh environments during routine operating conditions**. In wastewater applications, for example, sensors used for monitoring sewer water levels or detecting corrosion are themselves subject to being submerged for long periods of time or exposed to corrosive gases and chemicals. **To ensure that the instrumentation is appropriate for its intended purpose, look for proof of compliance with quality standards such as IP68 / NEMA 6P for waterproofing and independent certifications such as HazLoc for explosive environments.**

2. Accuracy and Versatility (be adapted to many different functions or activities)

Most contaminants can be identified within the pristine environment of a laboratory. However, in order to extract this much-needed information on a continuous basis, the next breed of autonomous, industrial sensors currently in development must address a critical industry need: the ability to detect heavy metals such as mercury, lead, and arsenic. Arsenic exposure is detrimental to both the environment and human health while lead and mercury must be carefully monitored in water supplies because of their potential to cause poisoning and renal and neurological injury.

No matter what you are remotely monitoring, hardware interoperability and the ability to monitor critical parameters are key evaluation criteria when selecting a sensor to support the full breadth of the monitoring effort you are hoping to undertake.

3. Power Optimization

The IIoT requires ultra-low-power consumption rates throughout the entire technology stack to minimize the need for sending maintenance crews to inspect edge infrastructure (the practice it is designed to obviate). Sensors that will directly connect to, and be powered by, an IoT transmission gateway must therefore place as minimal a power overhead as possible on the gateways in order to maximize battery duration. The sensors should also **feature short wake-up times** and long stabilization intervals to maximize the effectiveness of the entire IIoT ecosystem.

4. In-line or Submersible

Sensors that can be submerged or which can fit inline within a piping system can offer continuous monitoring capabilities for key fluid-borne parameters such as pH, total chlorine, and dissolved oxygen. These sensors can save substantial space and money compared to alternative solutions that require periodic sampling from a diverted supply. The ability to install a sensor in-line allows for in-situ testing, simplicity of installation, cost-effectiveness, avoiding coordination of the diverted waste stream, and creation of a flow cell in addition to other complication that can arise when setting up a sample-tap or flow-cell setup for onsite testing.

5. Price Optimization

To support the development and scalability of smart networks, manufacturers and retailers must ensure that sensors are also optimized for price. Given the often enormous amount of midpoints and endpoints that comprise a typical infrastructure network, for example, sensors must be priced at a level compatible with the financial scope of the typical monitoring projects that they will be expected to support.

Choosing the right sensors for the monitoring application can substantially expedite the creation of an IIoT-driven smart network. Follow the tips above to help guide your selection process.

https://www.fierceelectronics.com/components/five-tips-for-choosing-right-iiot-sensor