

FAQs

Chasing Industry 4.0: It All Starts with Sensors

What is the overall objective of Industry 4.0 (I4.0)?

The primary objective of I4.0 is to provide higher levels of operational effectiveness and productivity through automation. The concept of I4.0 is to allow machines to carry out the order, production, implementation, and delivery of a product with little to no human participation during any time in the process. I4.0 is expected to become the industrial process that adds value and knowledge management to production. These combinations of abilities will help companies to achieve a higher level of operational effectiveness and productivity.

What are the most prominent characteristics of I4.0?

A focus on digitization of all processes aimed at optimizing and personalizing production while highlighting automation and adaptation, human-machine interaction, value-added services, and automated data exchange and communication. Essentially, I4.0 will make use of such technologies and services as industrial automation, continuous connectivity and information, cybersecurity, intelligent robotics, PLM, big data, and more to improve the productivity of manufacturing industrial systems.

What is getting in the way of implementing I4.0?

Implementing I4.0 solutions is perceived as requiring high capital expenditures for new technologies. Even if manufacturers apply I4.0 slowly and over a few years' time, the new systems must maintain the ability to integrate with solutions already in place. The manufacturer also has to be able to adapt to the new foundations for business models that may have a large impact.

Is there a way to get started that can overcome some of these drawbacks?

The proliferation of the Internet of Things (IoT) has opened the potential for I4.0. By getting people used to interfacing with household systems through smartphones, companies are seeing the

transition more favorably every day. Everyday products connected to the internet has grown into a situation where sensors are now installed in field devices as well as factory floor systems. So, many manufacturers are already on the way toward I4.0 automation.

Then we're well on our way toward I4.0?

It's an evolution that starts with the sensor. The number of sensors and the ability of those sensors to accumulate valuable data are key elements to progress. Even with the best computers and automation equipment, the best manufacturing execution systems, and enterprise resource planning, achieving a fully implemented I4.0 system is impossible if the sensor systems implemented are not reliable or delivering the wrong type of information,.

What are some of the factors to look for in the right sensor?

At this point, designing sensors to communicate wirelessly and to synthesize data through a cloud-based interface is important. Further, sensors used in manufacturing must offer robust designs that can withstand some of the most challenging conditions—including harsh environments—must provide high accuracies so that correct data and information is available for analysis; be able to detect slight changes in measured parameters for high-resolution operation; and deliver long term stability where sensor performance last for years of operation.

What types of sensors are most commonly used for I4.0 applications?

In the past, many sensors have been available for direct measurements (e.g., temperature, pressure, force, flow, motion, and position sensors). The differences between those discrete sensors and the sensors being developed today to work with Industry 4.0



Sponsored by



applications are the feedback capabilities built into the newer sensors. These feedback capabilities are designed specifically to report on a variety of factors that are used to assist in determining the overall health of the system and its components, such as providing information that aids in determining when maintenance is required—used to greatly reduce downtime and aid in predictable servicing of system-level components.

For example, the MTS R Series V Temposonic sensors actively provide a variety of I4.0 parameters, including total operating time, minimum and maximum temperatures, number of cycles, and operating voltage (to name a few). This metadata is highly important to the end-user when making the determination of the system's well-being. The key is to know your application needs and what information is most valuable for analysis.

What is the primary indication of I4.0 readiness globally?

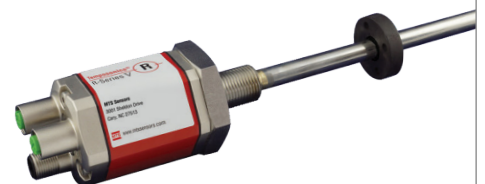
Having access to the latest technologies—starting with sensor technology that interfaces with cloud systems—primarily related to digitization from the ground up will greatly affect the growth of I4.0, regardless where in the world it happens. The most impact on the pace of implementation of I4.0 will be affected by the degree of maturity of the country's economy, its manufacturing investment opportunities, and the culture of innovation team chartered to make the change. This last issue is important, since the concept of I4.0 is expected to blur the differences between the work that people perform and the work that machines perform—while aiming to results in improvements in information management and decision-making.



CHASING INDUSTRY 4.0... IT STARTS WITH THE SENSOR.

R SERIES V POSITION SENSORS FOR INDUSTRIAL APPLICATIONS

- Rugged & reliable
- Better performance
- Backward compatible



Sponsored by



Temposonics®

mtssensors.com
info.us@mtssensors.com
800 633 7609