

The next generation of AS-Interface



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Since the 1990s, AS-Interface (ASi) has become an integral part of modern industry, with more than 37 million installed nodes worldwide. Customers can benefit from the economically reasonable fieldbus/wiring system for the first automation level, used to easily, reliably and economically connect sensors and actuators and attach them to the higher control level.

The yellow ASi cable transmits power and data at the same time. The easy wiring process is doable even without training. Now a new generation of the ASi standard has been presented for the new requirements in times of Industry 4.0. ASi-5 easily enables faster transmission of larger data volumes and effortless integration of intelligent IO-Link sensors.

Fabricio Granados, director of international sales at Bihl+Wiedemann, shares his candid thoughts about the advantages of ASi-5 and how easy it is to use ASi-5 slaves together with ASi slaves of any previous generation.

Q: Why is it time for the next generation of AS-Interface?

A: The main reason for evolving ASi was the changed situation for our customers. With the rise of a connected digital industry, more data needs to be transmitted. ASi-5 now allows us to transfer larger quantities of data at higher speed, while making integration of intelligent IO-Link sensors easier than ever.

Intelligent sensors and actuators are responsible for an increasing number of control functions in distributed systems. ASi-5 was developed by seven renowned automation companies, including Bihl+Wiedemann.

The complete project took more than 200,000 developer hours. Bernhard Wiedemann, CEO of Bihl+Wiedemann, was the technical leader of this cross-company development group.

Q: Is ASi-5 a completely new technology?

A: No, ASi-5 is the evolution of the well-proven AS-Interface standard. ASi-5 offers all the advantages that have already made ASi so special in the past.

The greatest challenge during the development of ASi-5 was to keep all the known advantages of ASi. ASi-5 had to be at least as good as ASi-3 in every aspect.

Customers still benefit from the simple wiring scheme with just one cable for both power and data, the ability to connect slaves to any desired location of the yellow profile cable and the high flexibility due to the use of application-specific slaves.

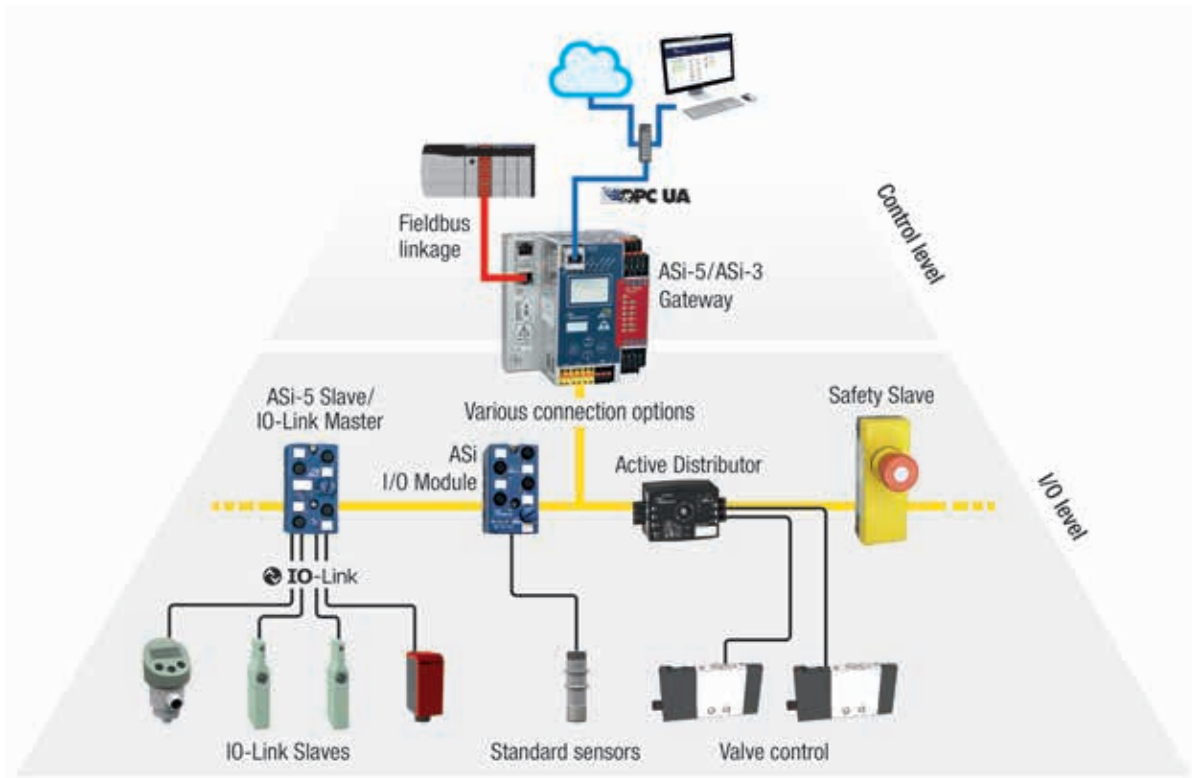
ASi-5 offers both a high bandwidth—process data size from 16 bits to 32 bytes per slave—and short cycle times—up to 384 digital inputs and 384 digital outputs in just 1.27 ms—making it possible to transport more and more data, without restrictions, to where they can yield valuable information.

Q: In what way does the higher data bandwidth influence the usability of ASi-5? Is it more complex now for the users?

A: The main advantages of AS-Interface are incorporated in the new generation. Long story short, our products are still as easy to use as before. Each network is controlled by one ASi-5 master that transmits data via fieldbuses such as Ethernet/IP or Profinet to a central control system or via OPC UA to the cloud.

The connection technology, such as connectors and wires, stays the same. Additionally, to the same usability, the user benefits from increased diagnostics; for example, a channel diagnostics is possible now.

This is a new generation of AS-Interface, which means that the technology still needs to prove its usefulness. When are the first ASi-5 products available?



IO-LINK

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Bihl+Wiedemann is already offering the first ASI-5 gateways and modules. Our goal is to develop quickly a wide product range to meet all of our customers' needs. The all-rounders in our portfolio are three new gateways that run on ASI-5 and ASI-3 and thus are able to communicate on both networks. If you want to read more on the technical specifics you can find the information on our website.

As with all new technologies, it will take some time to develop all products that are available on ASI-3. ASI-5 enables a more efficient incorporation of intelligent sensors in the AS-Interface, which was worth all the invested effort. Many of the new features will be playing an increasingly important role as digitalization continues. This is an iterative process, which I am very much looking forward to see what will come out of it.

Q: Can customers use their existing AS-Interface devices together with ASI-5 products?

A: The greatest advantage of ASI-5 is that it's completely compatible with all earlier ASI devices and components. ASI-5 slaves can be combined with ASI slaves of any generation in existing as well as in new ASI networks.

All ASI generations work parallel on the same cable—intelligent slaves, standard slaves and safety slaves on one network. In an existing ASI network, you can simply connect additional new ASI-5 slaves and easily continue to use existing ASI slaves. To use ASI-5 slaves all you need is a new Bihl+Wiedemann ASI-5 / ASI-3 gateway.

Here's another advantage: As before, AS-Interface in its ASI-5 expression remains a standard that guarantees compatibility between components of any manufacturer, not just the development partner. Any product with the ASI logo can work together with all the others in a common network and communicate seamlessly. Thus, for each problem there continues to be an ASI solution.

Q: In what applications is it worthwhile to switch to ASI-5 right now?

A: From our perspective that would be, above all, applications characterized by high transmission speeds or elevated data quantities—for example, at locations where much I/O data needs to be collected in a tight space. ASI-5 also makes incorporating intelligent sensors, such as IO-Link sensors, much easier. And the new, high-performance standard modules with up to 16 inputs can replace one or another expensive fieldbus solution in the field.

For more information about Bihl+Wiedemann and its AS interface (ASI) devices for automation and safety equipment, visit www.bihl-wiedemann.de/us/asi-5.html.