



AS-Interface | Technology

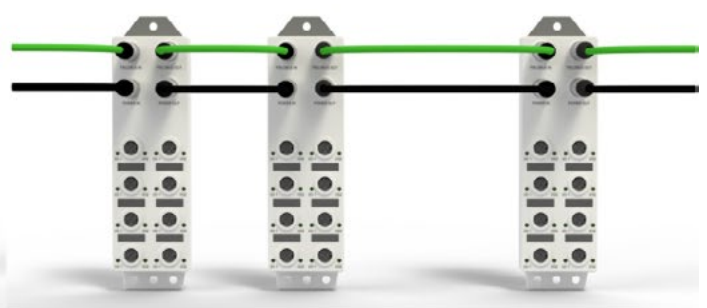
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Sustainable automation with AS-Interface: Less connectors – More connection

A single unshielded, two-conductor profile cable for both standard and safety data plus power, piercing technology instead of connectors, and the highest degree of flexibility and economy: but the success story of AS-Interface is not only about the simplicity and performance of this globally standardized wiring and control technology and the resulting advantages – it also includes the promise of sustainability that ASi fulfills.



AS-Interface



Other fieldbus solutions

Responsibility for the environment, reduction of the ecological footprint by saving CO₂, decarbonization of industrial and logistic processes, but also topics such as saving resources and the shortage of skilled workers – there are many facets to sustainability in industry. Products and processes are no longer viewed only through the lens of economics, but rather increasingly as an ecological issue as well. But one doesn't have to dive deep into this topic to see how AS-Interface lets you implement sustainable automation solutions.

ASi: technology for standard automation, safety and security in automation

All generations of AS-Interface are based at their heart on the principle of simplicity: nodes in the ASi network are connected to an ASi profile cable using piercing technology – without any special tools and exactly where they are needed. But ASi is not (any longer) just a flexible and cost-effective wiring solution, but rather has become a technology that enables high-performance automation solutions and – since it carries both standard and safety signals on the same cable – also makes implementation of functional safety a simple matter. IO-Link devices – and soon also IO-Link Safety devices – can be connected very conveniently with ASi-5 and thus integrated into Industry 4.0 and corresponding IIoT structures.

The software suites from Bihl+Wiedemann – ASIMON360 for safety and ASi Control Tools360 for standard applications – ensure an intuitive, errorless, and highly functional solution for individual processes and network topologies. Complex requirements, as found in drive technology, become child's play with ASi-5. And when it comes to safety aspects, the technology stands out by making a communicative break with TCP/IP at the field level. This shields the network devices from the outside world and, in contrast to field modules of other technologies with an integrated Ethernet interface, prevents potential safety gaps from arising in the first place.

And finally, all modern ASi devices from Bihl+Wiedemann can be updated via field updates, meaning that the hardware no longer has to be replaced if new safety requirements arise. The technological and application-related advantages are numerous – and they are all sustainable in a double sense, because AS-Interface not only stands for future-proofing, but also for environmental sustainability.



ASi cable



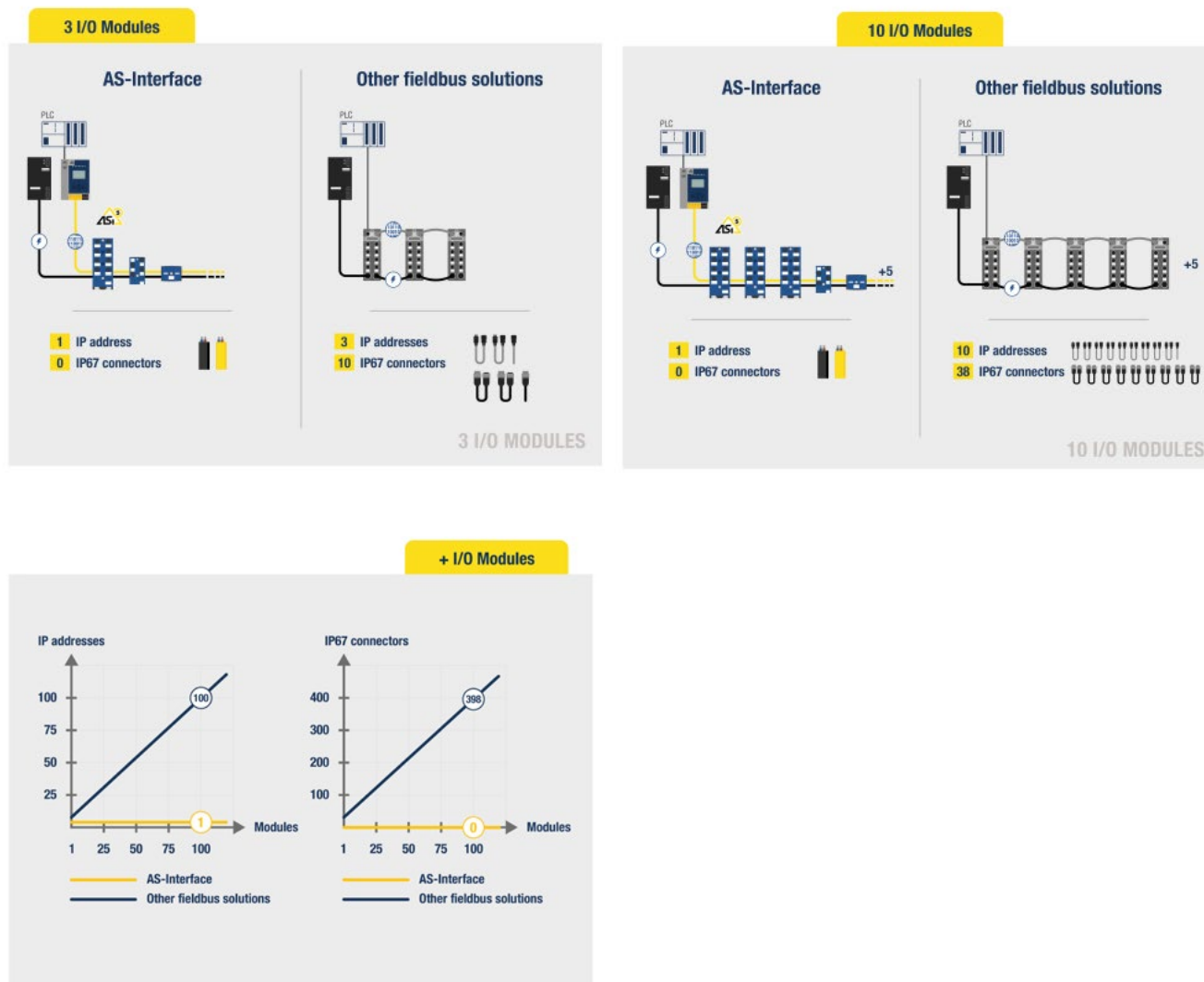
Conventional parallel wiring

AS-Interface – probably the most resource-saving automation technology

Less is more – this applies perfectly to AS-Interface. Whereas other fieldbus solutions require coded connectors for both the bus connection and power supply – with differing standards involved as well – ASi generally requires no connectors for connecting ASi network devices, since these components are simply pierced on the profile cable.

Also, no longer needed are connection cables in pre-assembled lengths, as used for the connection and the power supply of Ethernet modules, since ASi components can be flexibly connected to an ASi or AUX profile cable cut to length from the reel as and where required. Even considering the need for connectors and cables alone, wiring with AS-Interface results in significant cost savings of approx. 100 to 150 Euros per module connection compared to Ethernet-based fieldbus solutions.

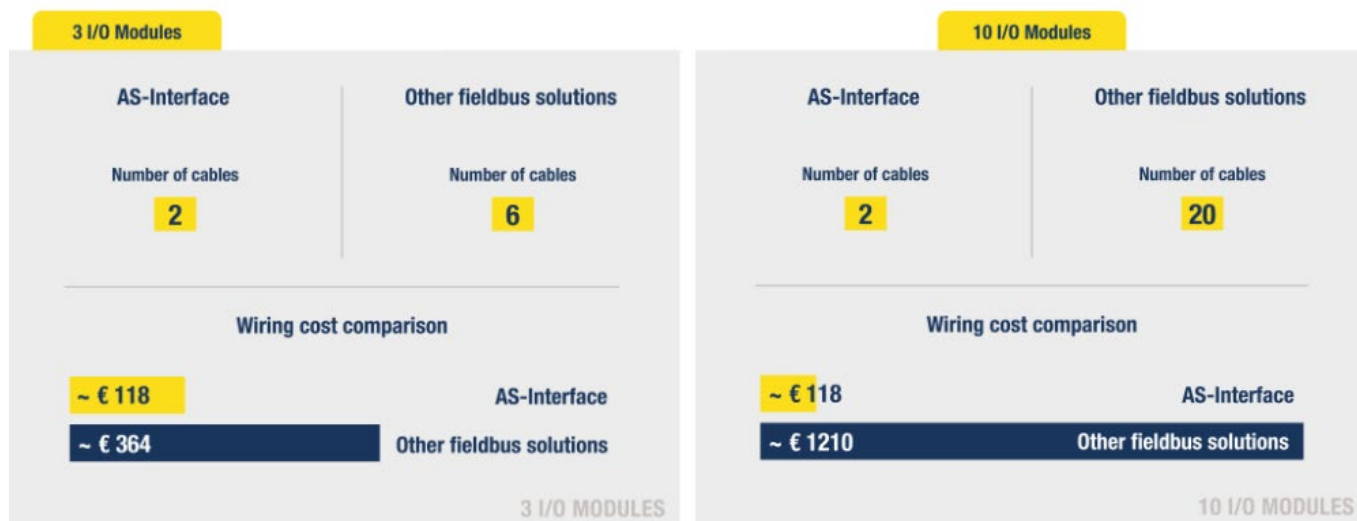
ASi offers savings not only in relation to other fieldbus solutions, but also in comparison to parallel wiring where each signal has to be wired individually to the control. Here, too, the raw material usage of copper and plastic for the ASi profile cable and the energy consumption required for its production are many times lower compared to the production of the individual wires required as an alternative. And there is also the positive environmental effect of less waste when it comes to disposal. Less plastic, less copper – a plus for the environment: as a resource-saving technology, AS-Interface is now more future-proof than ever – especially in comparison to other automation systems on the field level.



Comparison: required IP addresses and IP67 connectors for integrating I/O modules

Time is money – AS-Interface saves both!

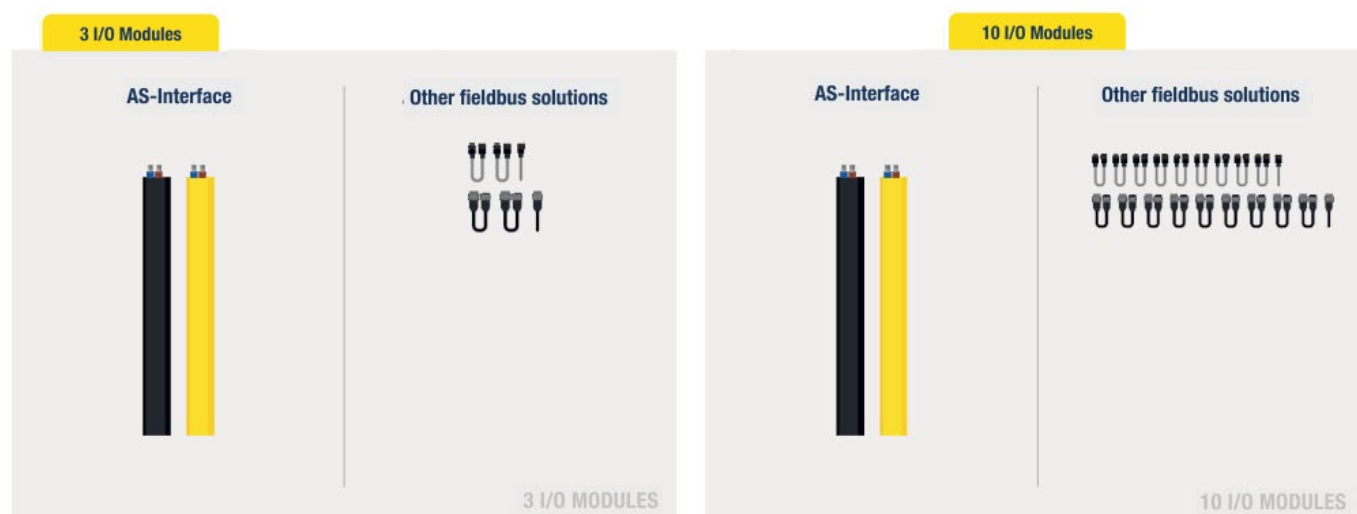
Working time is another valuable resource – especially in view of the shortage of skilled workers – of which the less is wasted, the more is available. Thanks to the reverse polarity protected profile cable and piercing technology, AS-Interface is probably the most efficient wiring system of its kind on the market – because it not only saves material, but also time and therefore money. In contrast to other fieldbus solutions, sensors and modules can be connected in seconds using ASi – without any prior planning and commissioning time for and without having to wait for pre-assembled connection cables – which have to be kept in stock in various lengths, without searching for a suitable mounting point, without the risk of incorrect cable lengths or incompatible connector coding, and without having to deal with up to four cables per module.



In addition, an extremely large number of modules can be connected – using just two conductors to the gateway – under just one single IP address. This saves not only expensive installation time, even if additional ASi devices need to be integrated quickly at a later date, but also significantly reduces the prior planning effort required for mechanical and electrical engineering or for service and maintenance.

Compared to traditional parallel wiring, installation with ASi also offers high savings potential – in addition to the significantly reduced material requirements already mentioned. Whereas wiring a single motor starter with thirteen conductors can easily require 60-90 minutes of installation time, ASi lets you accomplish the same task in just two minutes using an active distributor with M12 connection to the motor and a two-conductor profile cable already present in the system. In addition, simple diagnostic tools ensure that you don't have large numbers of individual wires to check with the risk of them being mixed up.

And finally, the ASi solutions from Bihl+Wiedemann are also characterized by economically attractive module prices with the resulting low costs per gathered signal, since depending on the individual requirements a comprehensive portfolio of ASi modules with two to 16 I/Os and one to eight IO-Link Master ports is available. This explains why, depending on the machine or system layout, ASi can reduce wiring costs by almost 70 percent compared to other fieldbus systems. AS-Interface therefore requires little to offer a lot at the same time. Your wallet and the environment are the beneficiaries...



Comparison: resource requirement for various automation solutions when integrating I/O modules

Environmental responsibility and decarbonization at Bihl+Wiedemann

Reducing CO₂ emissions is more important today than ever. Bihl+Wiedemann – equipped with a certified environmental management system in accordance with DIN EN ISO 14001 and an energy management system, certified in accordance with DIN EN ISO 50001 – is therefore consistently pursuing the goal of sustainable decarbonization in its commercial activities. To achieve a reduction in greenhouse gas emissions, the company is focusing on switching to renewable energies, using climate-friendly technologies, and a sustainability oriented supplier network.

For instance, the company has been covering an increasing proportion of its energy requirements at its headquarters in Mannheim with self-produced solar power since 2010. Thanks to two expansions of their solar power system in recent years, Bihl+Wiedemann generated around 260,000 kWh of energy in 2023. The company itself consumes the greater part of the energy generated, returning around 50,000 kWh into the public grid.

When selecting suppliers, the lowest possible CO₂ emissions are an essential criterion. Here, Bihl+Wiedemann relies on certified partners who have an appropriate sustainability profile, who use renewable energies for production and transport, who use ecological packaging and bundle purchase quantities in such way that transport costs are minimized, and who, if possible, are located nearby in order to avoid unnecessarily long transport routes. Bihl+Wiedemann and AS-Interface: the more sustainable the focus, the better the prospects.

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