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AS-INTERFACE MASTER NEWS

THE BIHL+WIEDEMANN MAGAZINE

INTERVIEW

“Starting instead of waiting: ASi-5 now”

BUILDING AUTOMATION

CONNECT, TEST RUN, DONE!

USE IO-Link PERFECTLY

Bihl + Wiedemann

ASi 5

Editorial

Dear Reader,

Medals usually have two sides, one of them – the reverse side – often enjoys a rather negative reputation. We have thought long and hard about whether the combination of IO-Link and ASi-5 has a downside as well – but we haven't found one. What could be bad about using the IO-Link point-to-point connection in order to integrate intelligent sensors into automation networks and thereby promote digitalization, industry 4.0 and IIoT? And what should be the disadvantage in connecting IO-Link devices in a machine cost-effectively and transmitting their data – even with a great data bandwidth – at high speed via ASi-5? On the contrary: isn't it fascinating as an automation specialist to finally have the best available of both worlds? With ASi-5 as a provider for the digital factory IO-Link finally has the perfect use. What it looks like in detail and why the fine-grain portfolio of ASi-5 Slave / IO-Link Master Modules from Bihl+Wiedemann enables economical solutions on both small and large scales can be found in the article starting on p. 3 as well as in the interview with Bernhard Wiedemann starting on p. 7.

Simple, cost-effective, flexible, functionally reliable, established – all of this and way more has long described AS-Interface. Nearly 40 million standard devices and around 8 million safety devices within ASi installations speak for themselves – and arouse interest in other sectors, such as in building automation. Here again, Bihl+Wiedemann – with its ASi portfolio specially designed for this market – is well-known as a competent partner, when it comes, for instance, to controlling fire dampers and smoke extraction dampers. The desire for simple and cost-effective wiring, high flexibility in retrofitting, or structural changes of use as well as a variety of diagnostic capabilities within building technology has long been limited not only to large airports or high-rise office buildings, but also exists in the installation of ventilation and fire protection systems in schools, hospitals, shopping centers, hotels or other smaller buildings. For properties of this magnitude Bihl+Wiedemann now has developed a pre-configured, installation- and connection-ready complete solution. Why this is getting so much attention from HVAC manufacturers and building automation specialists can be found in the article beginning on p. 10.

We are celebrating a premiere at sps in Nuremberg: our new booth! Visit us from 26 to 28 November, 2019 in hall 7 at booth 200 + 201. We now have more than 220 m² of space in which we present not only the topics from this edition, but also everything else that Bihl+Wiedemann has to offer related to AS-Interface – including further ASi Gateways with and without safe fieldbuses, ASi Safety, ASi-5 Slave / IO-Link Master Modules with one, two and four ports, or the new ASi-5 Counter Modules.

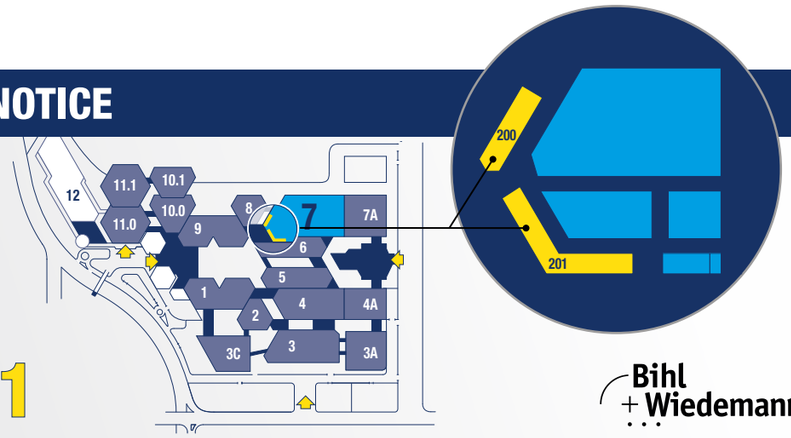
We look forward to your visit and hope you will enjoy reading this issue of ASi Master News.

Best regards,
Jochen Bihl & Bernhard Wiedemann
Managing Directors

EXHIBITION NOTICE

sps
smart production solutions

HALL 7
BOOTH
200+201



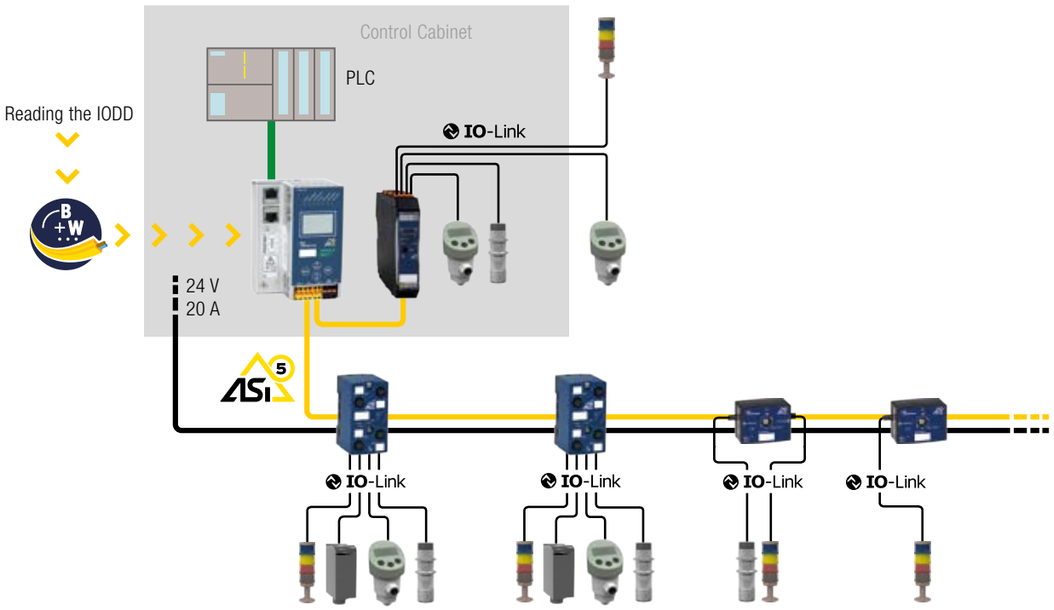
Bihl + Wiedemann

USE IO-Link PERFECTLY

Everyone is talking about digitalization. And it's common knowledge: without intelligent sensors and actuators that are able to acquire and share both process and diagnostic data, the concept just doesn't work. The data channel that such smart devices use on the field level is increasingly called IO-Link. But integration of this point-to-point connection into common fieldbus environments is often associated with restricted cable lengths, high wiring effort and expensive Ethernet fieldbus modules. The far more clever and more economical solution: ASi-5.

Intelligence and communication ability of sensors and actuators are critical requirements for successful digitalization. Such devices collect cyclical data for the process control, acyclic data for diagnostic purposes, detect function errors and can be parameterized from a higher automation level. The resulting advantages for instance when it comes to flexibility, quality and availability ranging from system planning to their use and maintenance make them interesting for virtually any sector

Simple integration of IO-Link devices using ASi-5



of industry. Plus, they are able to provide information for the IIoT which can be used as basis for new service, business and optimization models. Intelligent field devices – especially with IO-Link – are therefore trending. Users who deal intensively with IO-Link realize, at the latest when it comes to the actual implementation, that there are always questions about technically and economically efficient integration of IO-Link devices into the automation environment. Recently, structures are dominant in which intelligent sensors and actuators are connected to IO-Link masters in fieldbus modules, which in turn need to be connected to the controller directly or through switches with the help of an Ethernet-based fieldbus (see Fig. on p. 6 above).

However, this solution is not always the last resort. Another disadvantage arises when connecting individual, distributed sensors. Although only one IO-Link master port might be used, here one generally has to use Ethernet modules with four or eight IO-Link master ports – which makes the costs for a single connection much higher.

With ASi-5 the collection of IO-Link signals has a much more elegant and efficient solution: for one thing the proven advantages of AS-Interface are still enjoyed – the drastically reduced wiring effort compared with fieldbus solutions, the simple connection to the yellow ASi cable using piercing technology, the freedom of topology, the flexibility in connecting to virtually any common controller, and the cost-effective integration of safety in one and the same infrastructure which ASi users are already familiar with – all this is also retained with ASi-5. Then there is also the ability to retrieve the data from intelligent devices in the field more efficiently using IO-Link and to send that data at high speed even with great data bandwidth – all of which has already been designed into ASi-5 in the very concept stage. With up to 32 bytes per slave and a cycle time of 1.27 milliseconds, ASi-5 is currently the perfect – i.e. the most most flexible and convenient – IO-Link enabler for the digital factory. Cumbersome routing of the Ethernet up to the machine is not required. And with the 1-port IO-Link master version as an Active Distributor, Bihl+Wiedemann also offers a cost-effective alternative for the collection of a smaller number of intelligent devices. ASi-5 and IO-Link thus are ideal partners – they don't compete with each other but are rather perfectly complementary. And with the OPC UA server in the ASi-5/ASi-3 Fieldbus Gateway the right industry 4.0 interface is already on board as well. As an interoperable communication architecture it enables for example direct availability of sensor data, measurement values or control variables for higher level systems and cloud computing – without detours in parallel to the fieldbus.

Integration of IO-Link: ASi-5 instead of Ethernet

From the very beginning, ASi as a wiring system for the lowest field level was designed for simple, cost-effective and reliable integration of sensors and was later expanded in the direction of more complex modules and safety technology. With ASi-5 now even high-performance IO-Link devices with great data bandwidth can be connected without any restrictions. Whereas connecting IO-Link devices used to require a 4- or 8-port master with Ethernet connection, now the Ethernet connection to all slaves linked to the ASi network is via a single Ethernet connection in the ASi-5/ASi-3 Fieldbus Gateway from Bihl+Wiedemann. By this, the user is able to connect a multitude of IO-Link masters per ASi network on a maximum cable length of 200 m. For this, ASi-5 slaves with integrated IO-Link master ports are simply linked to the ASi cable right where they are needed via piercing technology and thereby linked to the gateway. Connection of IO-Link devices to the respective master port is still done as usual via cable using a M12 socket and a maximum cable length of 20 m. This simple principle is ideal for collecting many sensor signals with minimal wiring and IP administration effort.

Connection in "lot size 1": Integration of IO-Link devices in the finest possible granularity

The high cost efficiency of ASi-5 in collecting device data in the field is applicable even in the smallest possible scenario of "lot size 1", if only a single IO-Link device needs to be connected. In contrast to Ethernet-based fieldbus solutions with their 4- and 8-port solutions, the range of IO-Link masters from Bihl+Wiedemann includes 1-, 2- and 4-port and soon 8-port versions – making it currently the finest-grain and most flexible portfolio in the market. Especially the Active Distributors with one and two IO-Link ports offer extremely economical integration options for IO-Link devices. At the same time the 1-port IO-Link master offers the possibility of growing along with the application by incorporating intelligent sensors and actuators if needed.

Economical – even on large scales

ASi-5 with products from Bihl+Wiedemann therefore stands for flexibility and economy due to granularity – not just in smaller, but also in large projects. Ethernet nodes available on the market generally offer four or eight connection options for IO-Link devices. With a large machine having many intelligent sensors and actuators this means cumbersome wiring through switches as well as significant IT effort and IP management. With ASi-5 however you can theoretically connect up to 96 ASi-5 Slave / IO-Link Master Modules on an Ethernet node per ASi network whereby they in turn provide up to eight IO-Link ports. Just do the arithmetic: for an ASi-5 Gateway with two ASi networks this would mean 2 x 96 x 8 = 1,536 IO-Link inputs. It's clear that the "integration factor" of the ASi-5 solution of nearly 200 represents an extreme reduction of effort and expense on the IP level.

Cost benefits through less expensive hardware and reduced wiring

Regardless of the size of an ASi-5 installation it can be said that the modules of this wiring system are in general significantly less expensive than comparable IO-Link Ethernet modules. If ASi-5 is already integrated into the machine, an ASi-5 Slave / IO-Link Master from Bihl+Wiedemann used to collect the data from IO-Link devices pays for itself even with the first IO-Link device. If the infrastructure is not yet present in the machine, the user will realize savings as of the third ASi-5 Slave / IO-Link Master with four ports compared with IO-Link Ethernet modules. For single IO-Link devices ASi-5 can pay for itself even sooner using the 1-port IO-Link master. Further savings are realized by eliminating the greater wiring effort, switches and assembling of Ethernet cables.

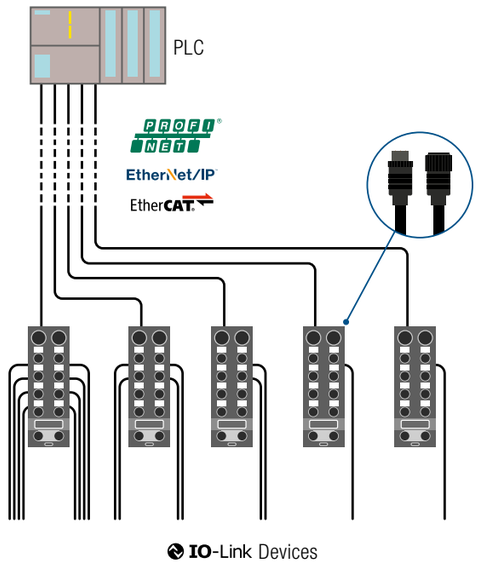
ASi-5: Manufacturer-neutral linking on both the sensor and the controller side

Intelligent sensors and actuators are offered in large numbers by numerous manufacturers. Whichever sensor manufacturer the user chooses, ASi-5 always fits, since IO-Link is specified identically for all providers. This also means that the use of IO-Link devices from different manufacturers in the same network is never a problem. Considering the great bandwidth and short cycle times achievable now with ASi-5, some applications with IO-Link devices and this installation system become feasible for the first time, whereas others will be able to profit later from greater performance with respect to process speed and accuracy. Manufacturer neutrality and interoperability are also ensured in terms of the higher-level controllers with their differing fieldbus interfaces: the ASi-5/ASi-3 Fieldbus Gateways from Bihl+Wiedemann are currently available in versions for PROFINET, EtherCAT, EtherNet/IP, Modbus TCP and Sercos – with others in development. They support not only standard binary sensors and IO-Link devices, but also come with the option of ASi Safety at Work.

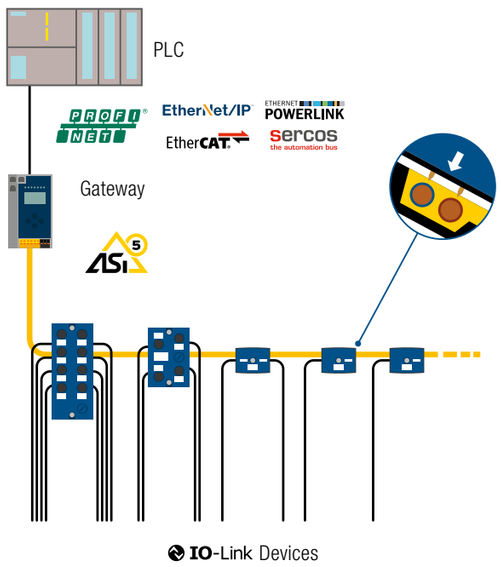
Parameterizing tools for IO-Link devices integrated in Bihl+Wiedemann software

With ASIMON360 and ASi Control Tools360 – the latter for applications without safety technology – Bihl+Wiedemann offers two intuitive software programs that make planning, configuration and parameterizing of ASi networks especially convenient, safe and fast. Both tools include the ability to incorporate IO-Link devices into the network as simply as entirely normal ASi slaves. Of course IO-Link users are still able to use

IO-Link solution from other manufacturers



IO-Link solution from Bihl+Wiedemann



their own existing parameterizing tools – the ASi-5 Slave / IO-Link Master recognizes the configuration of the IO-Link module and stores it. However, ASIMON360 and ASi Control Tools360 go even further: they make it possible through the integrated IODD interpreter to easily and consistently set the IO-Link devices along with all the other ASi slaves in the software and additionally save their configuration in the computer. One function in both software tools that IO-Link users are especially enthusiastic about is the online bus information. This makes it easy to commission ASi slaves and IO-Link devices and also parameterize and monitor in- and outputs live. Errors in the ASi network become immediately apparent, with clear and targeted notes for fault elimination, all ASi slaves and IO-Link devices can be individually selected and accessed, inputs can be diagnosed and outputs set, and parameters can be changed live. This last point is particularly valuable for IO-Link integration: the user is shown directly which concrete effects the new settings have for example on an IO-Link sensor, and he can immediately optimize the configuration if needed, such as by changing a limit value or rotating the device display to fit the installation orientation. The software suite also represents a simplification – previous ASi-3 users can now configure all their ASi-5 applications by just downloading the free update – for integration of the data into the controller and provides valuable support in diagnostics and fault elimination. All of which makes IO-Link a perfect solution.

ASi-5: the ideal data shuttle for digitalization

IO-Link as a fieldbus-neutral interface for intelligent sensors and actuators, ASi-5 for its part as an ideal enabler for the digitalized, smart factory – two technologies for industry 4.0 demonstrating meaningful coexistence and synergy. No wonder though that experts see enormous potential for the future in this dream team of IO-Link and ASi-5 with respect to continued digitalization in machine and plant engineering.

Interview with Bernhard Wiedemann, Managing Director at Bihl+Wiedemann

“Starting instead of waiting: ASi-5 now”

High-speed cycle times and a previously unattained data bandwidth make ASi-5 the perfect enabler for industry 4.0 and the Industrial Internet of Things (IIoT). The newest innovation level of the actuator-sensor network AS-Interface also supports the integration of intelligent devices, many of which are equipped with the point-to-point connection IO-Link. Bihl+Wiedemann has therefore integrated not only the OPC UA interface into its ASi-5/ASi-3 Fieldbus Gateways for IT integration but also the IO-Link master into its ASi-5 slaves. That way both technologies ASi-5 and IO-Link are able to complement each other perfectly and future-proof in the field level – as Bernhard Wiedemann, Managing Director of Bihl+Wiedemann, confirms in this interview.

ASi MASTER NEWS: Mr. Wiedemann, a year ago at SPS 2018, ASi-5 has been introduced to the public. Looking back, how would you assess the goals and the success of this common development by leading AS-Interface manufacturers? What expectations were met, and to what extent has the potential for subsequent optimization been realized?

Bernhard Wiedemann: The key message for potential customers and users is this: ASi-5 works. The wiring system has made the leap from testing to actual practice perfectly. Initial experiences have confirmed the overall concept and the performance capability. All it has taken is readjustment and optimizing at a very few setting points on the jointly developed and implemented setup.

ASi MASTER NEWS: IO-Link devices, which are becoming increasingly key elements of automation, can be perfectly integrated using ASi-5. What is it that's so special about the combination of ASi-5 and IO-Link? Does the user have to make any sort of compromises? And what about efficiency?

Bernhard Wiedemann: IO-Link has already established itself in the market as a point-to-point communication standard for intelligent sensors. ASi is the ideal wiring system for moderately sized networks having any kind of topology, as for instance found in mechanical engineering. Sensor and actuator data is appropriately collected in the field and then sent exactly where it is required. ASi-5 enables both virtues to be combined: on one hand intelligent sensors can now be perfectly integrated, and on the other hand networks can be freely built using ASi-5. What's fundamentally new is that with IO-Link and ASi-5 the customer enjoys the best of both worlds without having to make any compromises in sensor integration or network design and without any disadvantages. And ASi-5 is also highly attractive as far as costs are concerned. IO-Link devices no longer need to be wired up to the machine through Ethernet-based IO-Link masters and collected using expensive hardware components. Instead, all it takes is minimal wiring effort using a yellow ASi cable to which the ASi-5 Slave / IO-Link Master Modules with the connected IO-Link devices are mounted using piercing technology. Furthermore, our portfolio is finely differentiated: we have 1-port, 2-port, 4-port and soon 8-port versions of the IO-Link Master Modules in the range, which enable individually scalable solutions and extremely cost-effective integration of intelligent devices. Consider that a 1-port version in terms of the device price is significantly less expensive than an 8-port Ethernet module.

Bernhard Wiedemann,
Managing Director of
Bihl+Wiedemann

ASi MASTER NEWS: How are IO-Link devices integrated in practical terms? What changes for users who are already using IO-Link when ASi-5 is added to the mix?

Bernhard Wiedemann: Integration of IO-Link was already a key part of the development of ASi-5, appearing at the very top of the specification list. When it came to implementation, we made use of the data images which users are accustomed to from the PROFINET world for example. Instead of a possible entry hurdle caused by a new design and / or a new operation method, ASi-5 still offers the familiar and proven user interface when integrating IO-Link devices. The user sees virtually no changes except for the ASi-5 devices themselves, and any differences that do arise are for the better. For example the ASi-5 components are significantly more compact and space-saving than corresponding Ethernet modules. In addition, Bihl+Wiedemann offers significantly finer granularity in the already mentioned connection modules with one, two or four ports. It also helps that no installation space is wasted on the machine, rather all the space is efficiently used – while saving cost at the same time of course.

ASi MASTER NEWS: What have been your experiences with ASi-5 in projects and field testings?

Bernhard Wiedemann: The fact is that our new ASi-5 wiring technology has found great resonance, which in view of the advantages I just mentioned should be no surprise. The logistics sector, for example, which has a great affinity for AS-Interface due to its applicability in conveyor systems, high-bay warehouses or order picking in distribution centers, sees in ASi-5 new opportunities and potential for improvements. One example for this is the integration of scanners, which because of the great data bandwidth and short cycle times of ASi-5 is now technically practical. Adding ASi-5 to the existing ASi-3 infrastructure means opening up new performance potential. And it also comes with relatively slight outlay of time and money, since the upgrade requires only a new ASi-5/ASi-3 Fieldbus Gateway and new ASi-5 modules, which can be integrated into the existing topology. Our software programs ASIMON360 and ASi Control Tools360 in their current version – updates are as always available at no cost – let you integrate IO-Link devices into the AS-Interface network as simply and easily as normal ASi slaves.

ASi MASTER NEWS: Have applications emerged already that can be implemented perfectly using ASi-5? And are there pioneers for digitalization that make full use of the potential?

Bernhard Wiedemann: Intralogistics, which we just mentioned, are definitely playing a pioneering role – simply because the topic of E-commerce is fueling the performance capability of logistics systems. But there are also other sectors where there is interest in exploiting the opportunities offered by the new technology. The selective optimizing of processes or machines with ASi-5 and intelligent sensors is already happening.

ASi MASTER NEWS: To what do you attribute the great confidence that your customers have in ASi-5? And what would you advise those who are currently working with the new technology or will be in the near future?

Bernhard Wiedemann: Knowing something is the decisive factor in creating confidence. Our customers have known Bihl+Wiedemann for many years as a provider of application-specific and economical solutions. They know our commitment to AS-Interface, they know our products and services related to the wiring system. And they know that AS-Interface is at the core of our business compared with many of our competitors, allowing us to bundle our core competencies. But the fact that we are able to offer the customer a practical and high-performing system right from the start is to the credit of the entire ASi-5 development group, which devoted great effort and worked with great care in conceiving and implementing the new standard. ASi-5 had one very clear requirement: nothing that already works with ASi-3 can work any less with ASi-5. This care did result in additional work in the development process and added some time-to-market, but all the partners are still in full agreement that this was the right path to take. The confidence we are sensing in ASi-5 confirms that decision. Anyone contemplating the use of ASi-5 is taking – if at all – a calculable risk. We invite prospective customers and users to try ASi-5 in cooperation with us in a clearly defined, manageable first project, to gather experience and become convinced of the benefits. The time for ASi-5 is in any case ripe, and some implementations are already in place or will be very shortly.

ASi MASTER NEWS: As of November 2019, after one year during which it could only be used by development partners, the ASi-5 specification will become available to all members of AS-International. What does this mean for you as a supplier and for the customers?

Bernhard Wiedemann: It's a great thing for customers, since this represents a significant enhancement to the range of ASi-5 devices that the development partners don't have in their portfolio. The true openness and variety of manufacturers is after all what has always stood out with AS-Interface. And of course this will continue with ASi-5. For us as a manufacturer the positive thing is that the overall market will increase in size through additional ASi providers and products. Because the more compatible devices there are from various manufacturers, the more attractive it becomes to use ASi-5 to solve future problems. And that benefits everyone, since the need for ASi-5 components grows. This alone can become of enormous significance for ASi-5.

ASi MASTER NEWS: What happens perspectively with ASi-3 if ASi-5 can do so much more and better?

Bernhard Wiedemann: My premise is that ASi-3 and ASi-5 can continually coexist, because there are many simple ASi slaves that are not time or data critical for which the ASi-3 technology is fully sufficient and also less expensive. But at the same time customers should be aware of the advantages of ASi-5 in order to equip certain locations on a machine with the best possible performance, namely where for example intelligent sensors are used.

ASi MASTER NEWS: Where do you see ASi-5 in five years?

Bernhard Wiedemann: That's a good question. I assume that ASi-5 will by then have established itself as THE shuttle system for Ethernet-based fieldbuses and will continue even much longer to represent the state of the art without having reached its performance limits by future automation systems. Plus, there will be a variety of special modules for many different applications. OPC UA as a cloud interface will be used even more than now by manufacturers and operators to analyze the utilization of machines and processes in plants with greater precision. There will be much more and detailed knowledge that opens up new ways of optimization as well as new business models. And so at Bihl+Wiedemann we entered the market with conviction right from the start and will in the future continue to offer the right communication channels with our ASi-5 portfolio.

ASi MASTER NEWS: Thank you for the conversation, Mr. Wiedemann.

BUILDING AUTOMATION

CONNECT, TEST RUN, DONE!

TURNKEY CONTROL OF FIRE DAMPERS FOR BUILDINGS USING AS-INTERFACE

ASi, the industry-proven bus system for the lower automation level of machines and systems, has long been successfully used in building technology as well – such as in major airports or office buildings for controlling and monitoring of fire dampers and smoke extraction dampers or flow regulators. With their Fire Damper Stand-Alone controller BW3545 Bihl+Wiedemann now offers a pre-parameterized, ready to install and use complete solution for efficiently and cost-effectively integrating up to 120 fire dampers into BACnet-based building technology.

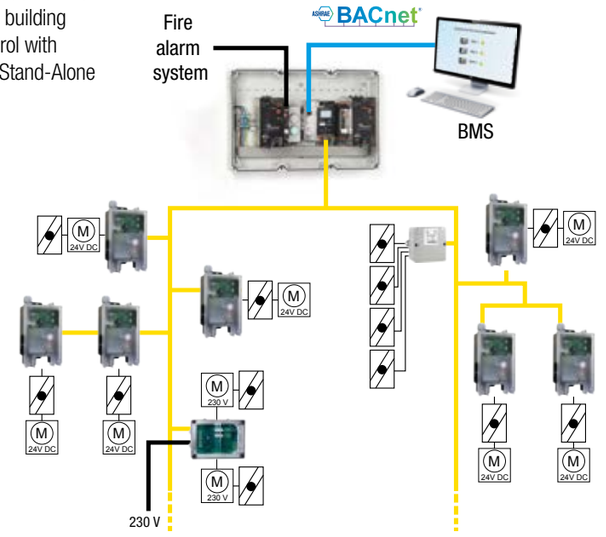
The Fire Damper Stand-Alone solution is of particular interest for HVAC and fire protection systems in schools, hospitals, shopping centers, office complexes, hotels or other buildings of similar dimensions. In many cases such complexes are maintained and equipped by local HVAC contractors. With this complete solution from Bihl+Wiedemann all the work involved in installation and commissioning is child's play in the truest sense, so that it can be carried out by the owners themselves without the use of additional electricians or an external HVAC contractor. The piercing technology for connecting the fire protection and ventilation components is utterly simple but safe at the same time, and the ASi cable carries a safe low voltage to which even non-electricians can connect devices.

Whether new or retrofitted: clever installations without cable spaghetti

With its components for building automation Bihl+Wiedemann has adapted AS-Interface to the demands of modern building services engineering. "At the same time, with the Fire Damper Stand-Alone we are able to offer the advantages of combining ASi and BACnet in places like airports or high-rises also in smaller buildings and infrastructures," explains Christian Lang, Director of National Sales at Bihl+Wiedemann. "Even if a new construction only requires say 20 fire dampers, conventional individual wiring results in kilometers of cable and thick cable bundles. This also makes testing connected devices or troubleshooting quite cumbersome. Not to mention when a building becomes repurposed or modernized – here you would need to pull for each new fire damper two cables through cable ducts over long distances up to the building control center, while everything is still running and through masonry, walls and ceilings."

Cleverer by a long shot is wiring fire dampers and other building technology components using AS-Interface. With ASi you have complete freedom of choice in the topology and use a single two-conductor cable – either flat or round or as fire-resistant orange E90 cable – to provide all slaves with data and power. The cable paths and communication with all connected components are continuously monitored. Interruptions such as failure of a fire damper or other problems are detected in real time and reported to the

Simple integration of fire dampers into building services control with Fire Damper Stand-Alone



building control center. Up to 62 slaves can be connected to one single ASi network – either directly or through short stub lines. "If an additional ASi module for the control of fire dampers needs to be added in an existing application, this is simple, fast and economical to do," notes Christian Lang, "since each of these modules is already equipped with its own passive distributor."

Autonomous, complete pre-parameterization for fast commissioning

Pre-wired components in a rugged plastic housing, pre-installed user software instead of individual programming, plain text display and immediate diagnostics on the device as well as a plug for connecting to the outlet – rarely has it been so simple and convenient to connect up to 120 fire dampers in small buildings, control damper actuators and monitor the position of non-motorized dampers. The heart of the solution is an ASi BACnet mini-controller. In large installations it works as a gateway between the higher level building control engineering and ASi – as a Fire Damper Stand-Alone solution it is the actual automation system with two integrated ASi masters for controlling and monitoring up to 60 dampers in each of the two ASi networks. To accomplish this, it is equipped with comprehensive diagnostic capabilities including plain text messages directly on the built-in display. BW3545 also features a redundant power supply to maintain the basic functions of the autonomous control unit even when an ASi power supply fails. HVAC manufacturers and building automation firms are enthusiastic about not only the turnkey concept of the Fire Damper Stand-Alone, but also about the ease of integration and commissioning. "All you need to do is connect the addressed modules. The system then starts a Quick Setup and runs a test of the damper functions. If no errors are found, the green LED comes on and commissioning is finished," explains Christian Lang. This is possible because BW3545 is pre-parameterized at Bihl+Wiedemann and contains a complete control program – with various rules for example for runtime monitoring or fault messages from components. "Nothing else needs to be parameterized, programmed or wired – just plug it into an electrical outlet, connect the configured components, make a test run, done."

Interfaces for BACnet and OPC UA

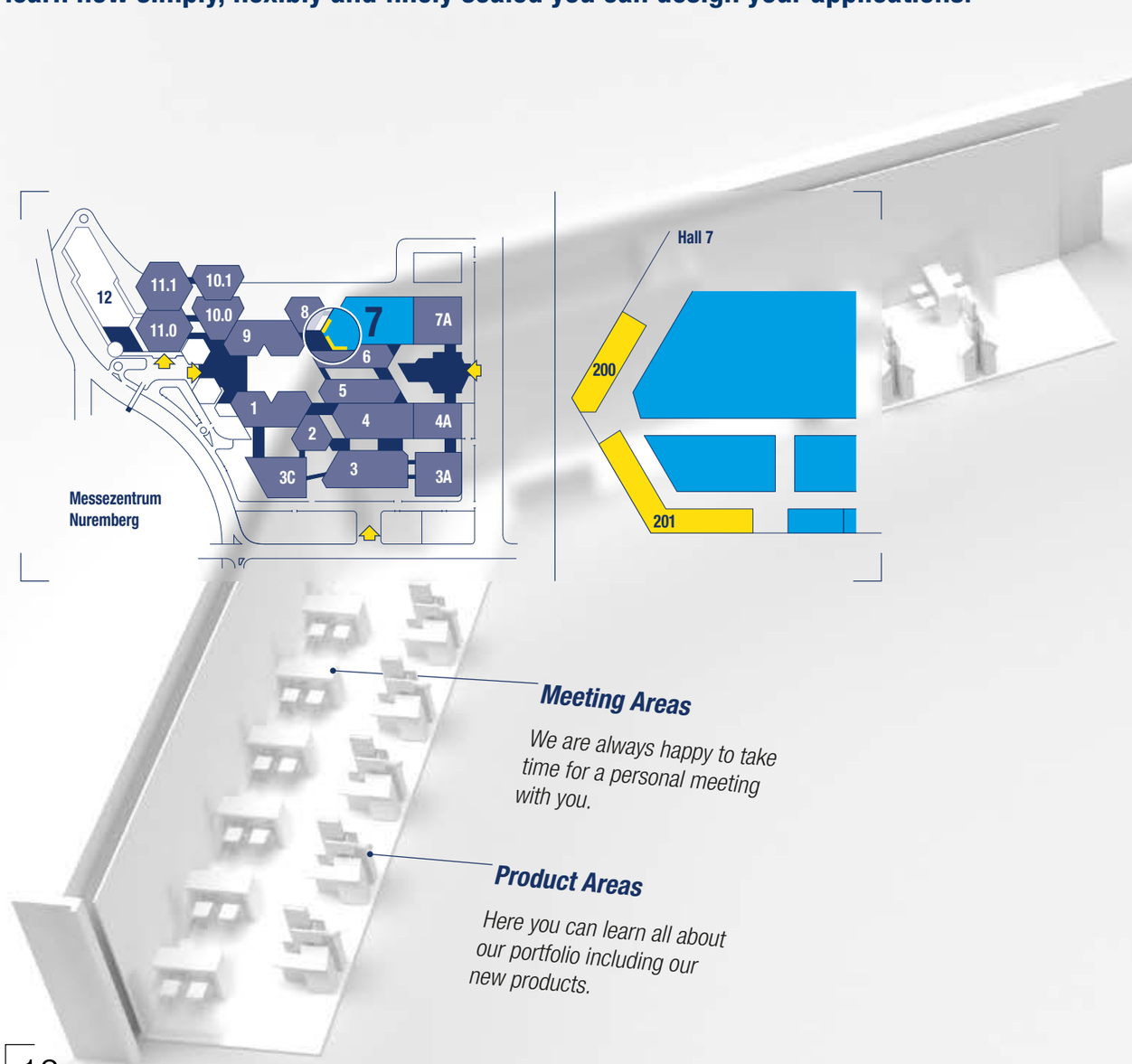
Just as important as efficient wiring of components for fire protection and smoke extraction in buildings is linking to higher level IT systems. This is why the Fire Damper Stand-Alone features an interface to BACnet, the leading network protocol in building automation. Based on ISO 16464-5, BACnet ensures interoperability between devices from different manufacturers, such as motor-driven fire dampers from various suppliers. These are already fully parameterized in the mini-controller and immediately available as soon as the control unit is connected through an Ethernet cable. Their data can also be visualized immediately. Bihl+Wiedemann has also integrated a second interface: OPC UA. Just as in industrial environments, this interface supports cloud solutions, for example in global facility management. At the same time, it meets the highest requirements with respect to protection and data security against unauthorized access.

Futureproof solution

Reduced fire loads through significantly less cable compared with conventional wiring technology, free choice of topology, greatly reduced installation and commissioning effort, control of 24 VDC or 230 VAC damper actuators, safe monitoring and feedback of end positions on non-motorized fire dampers – all arguments for ASi as the wiring system for building automation. Add to this the rapid troubleshooting on the short line between slave and damper, the flexibility in adding to or moving motorized fire and smoke extraction dampers or of flow regulators when renovating or repurposing buildings, as well as the ability to attach other sensors and actuators as well to the flat cable. The ASi BACnet mini-PLC in its gateway role as well as the autonomous control unit provide the HVAC, central fire alarm systems and control technology for large property complexes and small buildings not only with all the data from the connected safety components, but also enable comprehensive diagnostic capabilities. The OPC UA interface as a prerequisite for gradual implementation of IIoT and cloud technologies enables linking of the distributed ASi infrastructure of the building services engineering to innovative concepts of facility management 4.0 up to cloud-based remote applications. AS-Interface together with BACnet and OPC UA is therefore the ideal solution for building automation both now and in the future.

sps 2019

We cordially invite you to visit our booth 200 + 201 in Hall 7. Meet our ASi experts on more than 220 m² space and experience this year's highlights ASi-5 and IO-Link. Attend our talk „Clever integration of IO-Link using ASi-5" to learn how simply, flexibly and finely scaled you can design your applications.



Meeting Areas

We are always happy to take time for a personal meeting with you.

Product Areas

Here you can learn all about our portfolio including our new products.

IO-Link Multi-Vendor Wall

Here you can see a variety of IO-Link devices on the new ASi-5 Slave / IO-Link Master Modules.

IO-Link Workstations

Test the fast and simple integration of IO-Link in just 3 minutes.

Building Technology

Cost-saving installation and great flexibility using ASi.

Presentations

Clever Integration of IO-Link using ASi-5 – simple, flexible, granular.
Daily timetable:

10 a.m. (DE)
11 a.m. (EN)
12 p.m. (DE)
2 p.m. (DE)
3 p.m. (EN)
4 p.m. (DE)
5 p.m. (DE)

ASi-5 Highlights

Get your plant ready for industry 4.0.

Newest Conveyor Applications

RFID sensors are simple to read with IO-Link.

Automated Guided Vehicles

Integration of safety laser scanners via CIP Safety.

ASi-5 Highlights

- **Great data bandwidth:** Process data size from 16 bits up to 32 bytes per slave
- **Short cycle times:** Up to 384 digital in- and 384 digital outputs in just 1.27 ms
- **Full compatibility:** ASi-5 is fully compatible with all previous ASi devices, generations and components
- **Simple integration:** Intelligent sensors and actuators like IO-Link can be integrated easily

IO-Link Highlights

- **Cost saving:** Up to 40% if using 50 IO-Link devices
- **Reduced machine costs:** The interface variety is significantly reduced, development and installation costs drop
- **High machine availability:** When a device is replaced, the parameters are automatically written to the new sensor
- **Efficient operation:** Devices can be attached directly to the machine

sps
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AS-INTERFACE | DEVELOPMENT

ASi-5 HIGHLIGHTS FROM BIHL+WIEDEMANN AT SPS

ASi-5/ASi-3 Fieldbus Gateways

- ✓ ASi-5 Master and ASi-3 Master in one device
- ✓ Integrated webserver for simple diagnostics / remote maintenance
- ✓ OPC UA server as interface for OPC UA communication
- ✓ Chip Card for storing configuration data
- ✓ Applications up to SIL3, PLe
- ✓ Can replace ASi-3 Gateways without any programming effort
- ✓ Most powerful platform from Bihl+Wiedemann

	Article	Fieldbus	Double Master	Safety Gateway (integr. Safety Monitor)	Safe Fieldbus	Selection of mode of safe operation	Safe speed and standstill monitoring	24 Volt ASi Gateway	OPC UA
	**BWU3847**	PROFINET	–	–	–	–	–	✓	✓
	**BWU3849**	EtherNet/IP+ Modbus TCP	–	–	–	–	–	✓	✓
	**BWU3854**	EtherCAT	–	–	–	–	–	✓	✓
	**BWU3863**	PROFINET	–	✓	–	✓	✓	–	✓
	**BWU3862**	PROFINET	–	✓	PROFIsafe	✓	✓	–	✓
	**BWU3674**	PROFINET	✓	✓	PROFIsafe	✓	✓	–	✓
	**BWU3857**	EtherNet/IP+ Modbus TCP	✓	✓	CIP Safety	✓	✓	–	✓
	**BWU3858**	EtherCAT	✓	✓	FSoE	✓	✓	–	✓
	**BWU3861**	Sercos	✓	✓	–	✓	✓	–	✓
	**BWU3845**	Sercos	✓	✓	CIP Safety	✓	–	–	✓
	**BWU3860**	Sercos	✓	✓	CIP Safety	✓	✓	–	✓

ASi-5 Slave / IO-Link Master

- ✓ Comfortable parameter setting of the connected IO-Link sensors using B+W software suites
- ✓ Up to 4 x 16 bit user data available in 1.27 ms
- ✓ 1 ASi-5 slave
- ✓ In- and output voltage out of AUX

	Article	Type	Number of IO-Link ports	IO-Link Port Class A	IO-Link Port Class B	Connection of ASi	Connection of periphery	Protection rating
	**BWU3843**	ASi-5 Slave / IO-Link Master, 4 Ports	4	Configurable terminals		6 x COMBICON	6 x COMBICON	IP20
	**BWU4067**	ASi-5 Slave / IO-Link Master, 4 Ports	4	2 x	2 x	ASi profile cable	4 x M12 socket (5-pin)	IP67
	**BWU4077**	Active distributor ASi-5 / IO-Link Master, 2 Ports	2	1 x	1 x	ASi profile cable	2 x M12 socket (straight, 5-pin)	IP67
	**BWU4088**	Active distributor ASi-5 / IO-Link Master, 1 Port	1	–	1 x	ASi profile cable	1 x M12 socket (straight, 5-pin)	IP67

ASi-5 Digital modules:

- ✓ High I/O density
- ✓ Low overhead costs
- ✓ 1 ASi-5 slave
- ✓ Protection rating IP20 and IP67

16I, IP67, M12 (BWU3164)
8I/8O, IP67, M12 (BWU3163)
8I, IP67, M12 (BWU3802)
16I, IP20, 22.5 mm (BWU3874)
8I/8O, IP20, 22.5 mm (BWU3872)
8I, IP20, 22.5 mm (BWU3873)

ASi-5 Counter modules:

- ✓ 1 ASi-5 slave
- ✓ Protection rating IP20 and IP67
- ✓ 4 two-channel and 4 one-channel counter inputs

IP67, M12 (BWU4042)
IP20, 22.5 mm (BWU3875)

IMPRINT

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ASi-5

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