

AS-INTERFACE MASTER NEWS

THE BIHL+WIEDEMANN MAGAZINE

INTERVIEW

**“In Spain things
are just taking off”**

ASi Control Tools360

EVERYTHING LIVE

SAFE OPERATING MODE SELECTION

ONE FOR ALL



Safe Operating Mode Selection

ONE FOR ALL

There is no question that the future will bring stricter safety regulations for operating mode selection – for example when servicing or for setup operations. But Bihl+Wiedemann would not be Bihl+Wiedemann if there was no convenient solution existing here as well: a new certified module in the Safety Monitor of the company based in Mannheim enables safe operating mode selection up to Performance Level e just by using ASi via standard HMIs – and makes it easy for the user to benefit from the various system advantages of AS-Interface even in times of tightened standards.



The discussion has long been a lively one in the world of automation, and it is not getting any quieter, rather louder. In the meantime there are even a few standards that specify exactly what the topic of the dispute is: a safety-related assessment of the operating mode selection.

The reason for the tightening of regulatory requirements already implemented in some fields and already planned in others is clear: when switching over to certain special operating modes various safety-related components and functions such as safety doors, enabling switches or reduced speeds are turned off in an automated way. This of course not only increases the risk of machine damage, but mainly represents a risk of injury to the operator.

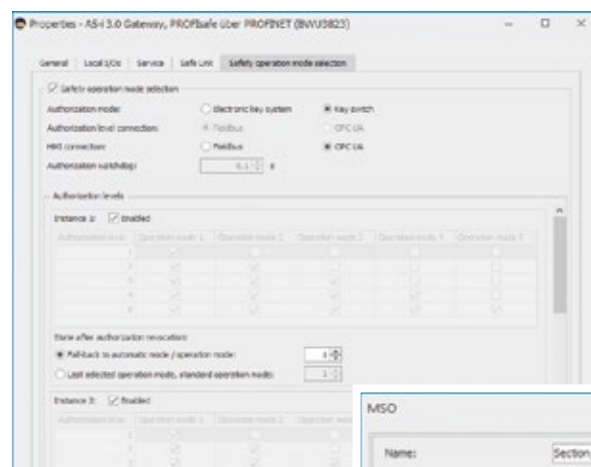
Simplicity is the top priority in configuring operating modes

Among the most common reasons for selecting a special operating mode is for instance the new setup of a machine after changing tools. Commissioning can also be considerably facilitated if it is possible to select dedicated modes of operation for various system parts. And when service and cleaning work is required in large systems, valuable production time can be saved if only the segments actually being worked on run in maintenance mode, whereas all the other sections remain in automatic mode.

Thus, if using safe operating mode selection it is essential that the correct protective function is provided for any application case. Unintended switching over or simultaneous enabling of multiple modes of operation obviously needs to be prevented. When configuring the single modes of operation simplicity should always be the highest priority, and this begins already with the interface used for changing. An important goal of safe operating mode selection is to minimize the temptations for arbitrary manipulation of protective devices by machine personnel. And the best way to do this is to make operation as convenient as possible for the user by means of an HMI – with flexible language, easily understood characters and clear arrangement of the respective elements.

All this could be found in the specification sheet of the developers at Bihl+Wiedemann as they began their work. What resulted is a solution which, from the perspective of user and programmer alike, offers a maximum of flexibility and efficiency, by combining the complete intelligence of the safe operating mode selection in a single certified module for the AS-Interface Safety at Work Safety Monitor. With just this one module a total of six instances for various system parts with five different modes of operation each can be freely configured to cover virtually any possible application case. The Deutsche Gesetzliche Unfallversicherung (DGUV), Department of Wood and Metal, defines for example the following five 'Modes of safe operation' (MSO): manual mode with open doors and manually controlled motion, automatic mode with fully enabled safety technology, setup mode with reduced speed plus enabling switch and E-Stop, automatic mode with manual intervention at full speed, and finally service mode, whose characteristics are defined by the manufacturer.

The concept makes life easier for users and programmers



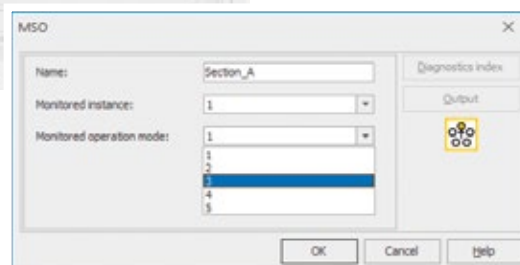
Assigning a safe operating mode to an instance as part of the module configuration

With this solution from Bihl+Wiedemann the universal, standardized cross-platform interface OPC UA guarantees the programmer extremely simple integration and diagnostics of the safe operating mode selection. Life is made easier for users since by using this module a non-safe device such as a standard HMI can be sufficient for safe operating mode selection. Thanks to the graphical representation that can be created on such a display the procedure becomes a completely simple and intuitive function of the machine.

The Bihl+Wiedemann concept is also flexible when it comes to protection. Access to safe operating mode selection can be controlled in two different ways: either by using a 2-channel safe input, or by means of an electronic key system combined with a special procedure.

Whereas version 1 is typically implemented using a safe key switch, a transponder-technology based system such as EKS FSA from Euchner is typically used for version 2, consisting of a read station and one or more keys with programmable memory. This requires two defined signals: on one hand a non-safe

Simple configuration of the safe operating mode selection in the settings of the Gateway



“Chip inserted” signal and at the same time a valid code word which is read from the key and which grants authorization for the operating mode selection. There are a total of five valid code words that can be used for a simple means of implementing various authorization levels. This means that the module can be configured for example such that a maintenance staff with his electronic key is able to select different modes than the actual operator.

Moreover a system like this offers the possibility of storing additional information and data such as process parameters on the key and sending them to the controller.

From now on the module is planned in all new devices

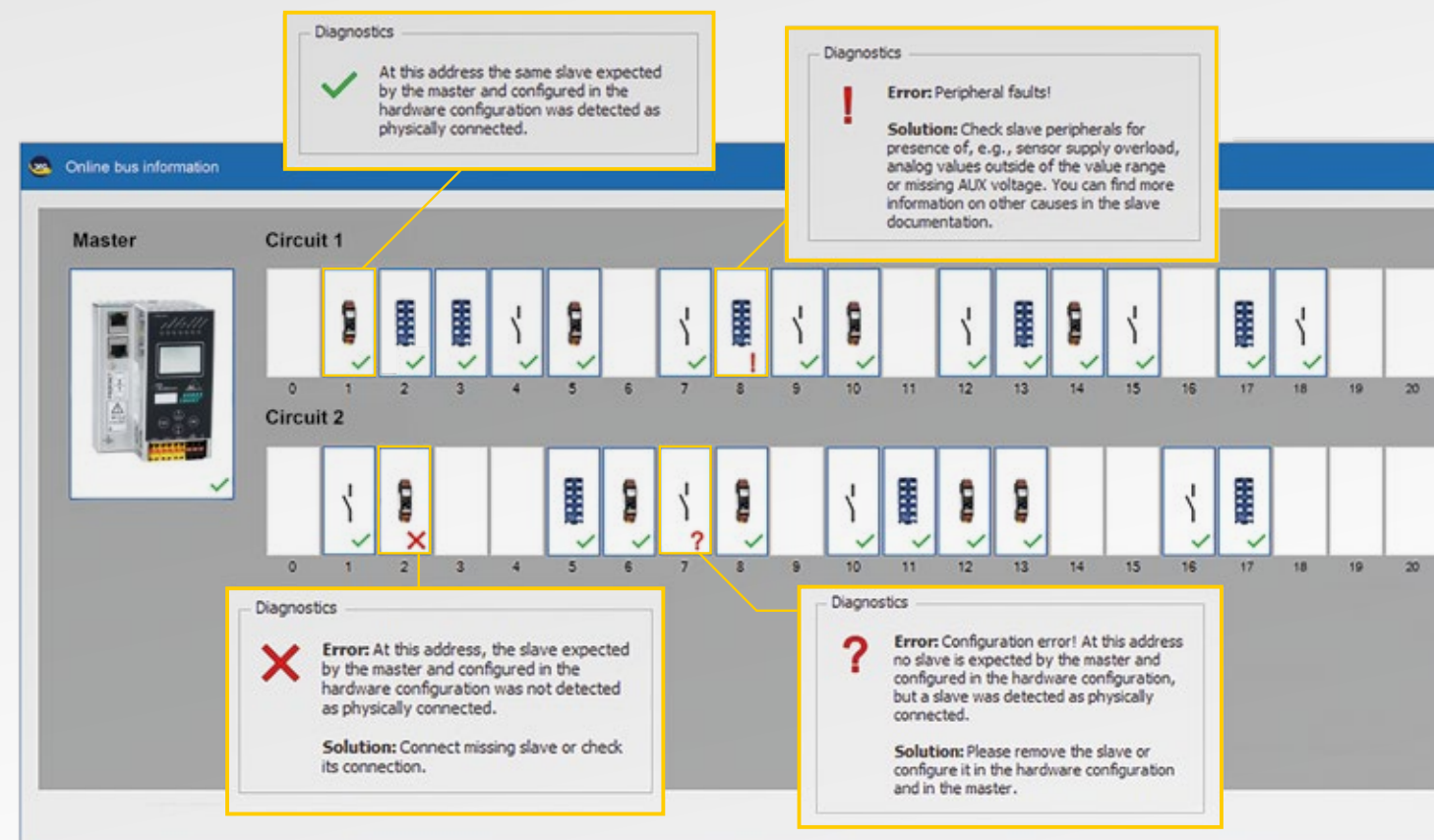
The innovative module for safe operating mode selection is already integrated into the new Bihl+Wiedemann ASi Safety Gateway with integrated Safety Monitor for PROFI-safe via PROFINET (BWU3823). This multi-talented Gateway with Double Master, the open communication protocol OPC UA, webserver and many other features, currently offers what is surely the most powerful platform for the future in the company's range. “But this is of course just the beginning,” says Managing Director Jochen Bihl. “From now on the module is planned in all new devices – including versions that are not assigned high-end.”

Because in times of stricter safety standards one thing is sure for the co-founder of the AS-Interface Masters from Mannheim: “I see safe operating mode selection for AS-Interface not as something just nice to have, but rather as a must. We have always wanted to make things as easy as possible for our customers to profit from the many advantages of the system. Which is something we want today more than ever in the face of ever more complex applications.”

ASi Control Tools360

EVERYTHING LIVE

With their intuitive, all-round carefree software ASIMON360 Bihl+Wiedemann has set new standards for simple configuration of safety applications, on view at SPS IPC Drives 2016. But that's not all: the simplify-your-automation offensive of the company based in Mannheim now also enters the non-safety area with the next generation of the ASi Control Tools. A particular highlight is the online bus information, which enables live parameter setting and live diagnostics of systems – an option which offers big advantages when integrating intelligent sensors such as IO-Link.



Online bus information as a part of ASi Control Tools360

Readers were enthused and bought more than four million copies when at the beginning of the new millennium the self-management advisor “Simplify Your Life” appeared. In the meantime the title of the bestseller has long become the dictum when it comes to how to simplify one's life in our ever more complex world.

That simplification is also a matter of urgency in the increasingly complex world of automation is doubtless one of the decisive success factors of AS-Interface. One single cable for power and data, freedom of topology, less wiring effort, safe and non-safe signals on the same cable, optimal granularity, simple configuration – these are just some of the advantages that have rapidly made the system the absolutely unchallenged de facto standard on the primary automation level.

“As easy as ASi” became an early credo among the rapidly growing number of users who place value on efficient, flexible and above all straightforwardly implementable solutions for their standard applications as well as in their safety technology. Today one might put the guiding thought, that has always been at the top of the specification sheet for the AS-Interface specialists at Bihl+Wiedemann, a little differently when it comes to the development of their innovations: „Simplify Your Automation.“

One of the most recent quantum leaps in terms of simplification was represented for example by the Safety Software ASIMON360 introduced at SPS IPC Drives 2016, with the help of which the simplest safety bus in the world is now also as easy as child's play to configure. The integrated hardware configuration especially saves much time and work for the project planner, since most of the settings – as one should expect from a truly intuitive software – are automatically set and done in the background.

This means that when planning the ASi network Safety Monitor and slaves are simply selected by article numbers from a list of available devices. Complications caused by incorrectly assigned components are truly yesterday's news. The same applies

to wrongly addressed slaves. After configuration, a commissioning wizard guides you step-by-step through the addressing process. And the best part: the user doesn't have to be an ASi professional nor study manuals as thick as a telephone book.

Because in view of Internet of Things applications of the factory of tomorrow intelligent sensors and actuators are already trending today, Bihl+Wiedemann added an additional feature to its Safety Software in the following year: since the last SPS IPC Drives IO-Link sensors can also use ASIMON360 to be incorporated and configured in the AS-Interface network just as easily as standard ASi slaves.

What began with the all-round carefree software for safety applications is now being continued with the same consistency in the standard area. As the next logical step, as part of the simplification strategy, a comprehensive update of the ASi Control Tools appeared. All the new features that had already proven themselves in ASIMON360 were carried over to the next generation of the ASi Control Tools: hardware catalog for simple insertion of products, commissioning wizard, user catalog for creating own templates and articles – to name just a few.

One highlight with which both the standard and the safety software were equipped is a new function called online bus information: it allows slaves to be easily addressed and the in- and outputs then to be monitored live. The result is all new possibilities regarding diagnostics and configuration of systems:

✓ Errors in the ASi network, such as non-configured slaves, are visible at a glance and understandable for anyone using simple symbols.

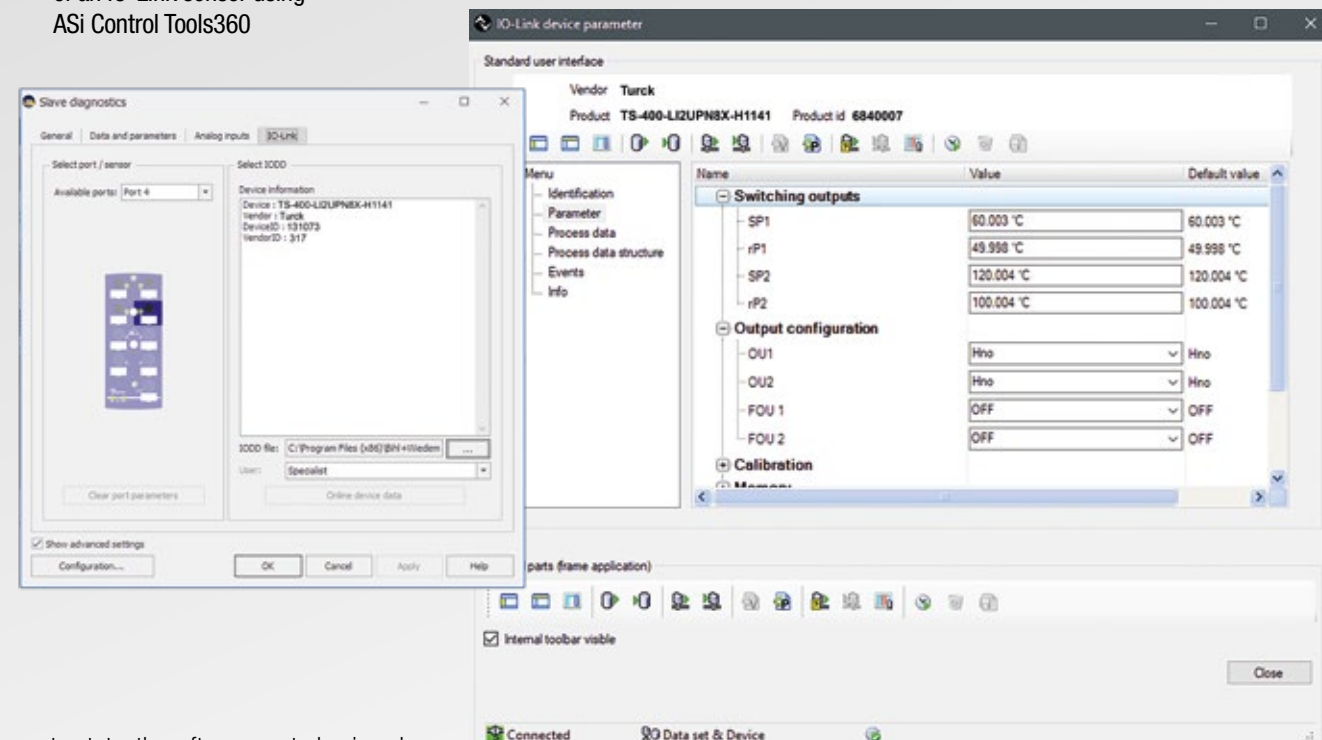
✓ The displayed instructions for eliminating the errors are unambiguous and offer valuable support to the user.

✓ All slaves can be individually selected and accessed.

✓ Inputs can be diagnosed, outputs can be set and parameters can be changed live.

Live changing of parameters makes sense not least for intelligent sensors such as IO-Link because this way one can see the effects of the new settings immediately. And it's precisely for this dream team of AS-Interface and IO-Link that experts are anticipating a grandiose future in the age of industry 4.0. Especially since IO-Link, in

Integration and configuration of an IO-Link sensor using ASi Control Tools360



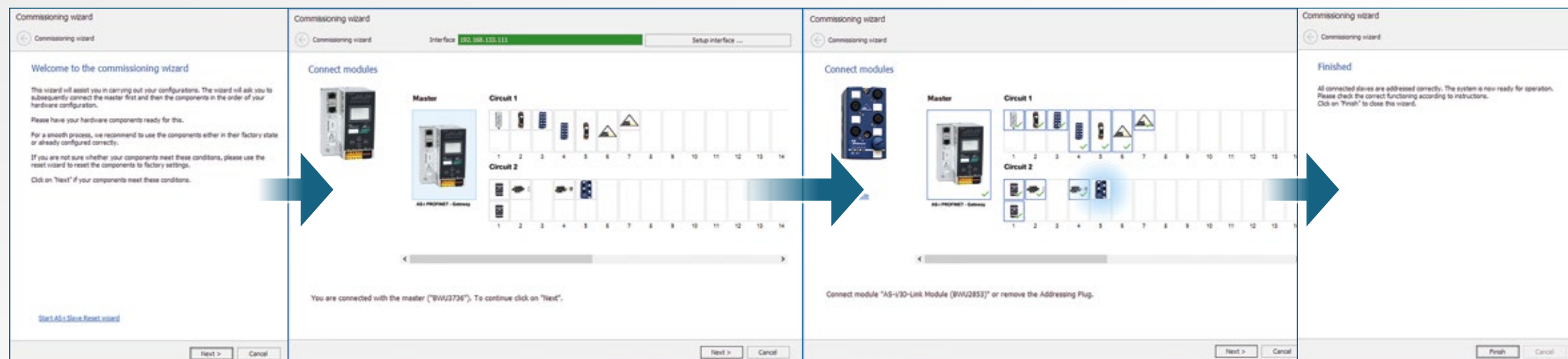
contrast to the often-repeated misunderstanding, is not a bus system but rather a point-to-point connection, making it a perfect feeder for AS-Interface.

But that isn't all: users of the new Software Suite BW2902 from Bihl+Wiedemann now get, as the perfect supplement to the new

ASi Control Tools (ASi Control Tools360), the same unique diagnostic software from the company located in Mannheim which makes life even easier for users of AS-Interface. At the push of a button

it starts a complete fitness check of the entire system and formulates the results in such understandable terms that even non-specialists will know exactly what to do. Here again: “Simplify Your Automation”.

Commissioning wizard of ASi Control Tools360



Start the commissioning wizard.

You are connected with the Master.

Connect Digital Module BWU2552.

That's it!

Interview with Mario Pajuelo, Business Development Manager Iberia at Bihl+Wiedemann

“In Spain things are just taking off”

After several economically challenging years Spain now finds itself again in growth mode. This applies especially to the logistics sector, which is reporting increases of twenty-five percent. Mario Pajuelo, Business Development Manager Iberia at Bihl+Wiedemann, reveals in conversation with the ASi MASTER NEWS why the manufacturers of horizontal transport applications are relying on ASi and ASi Safety when designing their system.

ASi MASTER NEWS: Mr. Pajuelo, Bihl+Wiedemann has only been active in the Spanish market since 2012. Nevertheless your country is already today one of the greatest consumers of your company's products. Would it be fair to say that things are just taking off in Spain?

Mario Pajuelo: Yes, that formulation actually hits the nail on the head, because it is above all the rapid development in the logistics sector that has been for some time responsible for the great demand for ASi and ASi Safety solutions. Rentals of logistics space have shown an increase of an amazing twenty-five percent in 2018 compared to the prior year. This enormous growth is only manageable of course if the right technologies are in place.

ASi MASTER NEWS: Before we get to the technologies: what are the most important drivers of the logistics boom?

Mario Pajuelo: There are mainly two aspects to this: on one hand, following a weakness phase that lasted until 2015 the Spanish economy has been on a considerable upswing for the past two or three years. And if more is produced, logically more also has to be transported. The increase rates in logistics however are much greater than those of the gross domestic product. This in turn is related to the unusual growth of the e-commerce segment. Southern Europe is highly dynamic in this respect, and Spain even leads the e-commerce ranking of the Southern European countries, most re-

cently with an increase of around seventeen percent compared to the prior year.

ASi MASTER NEWS: Most applications implemented by you on the Iberian peninsula are horizontal transport applications. What does Bihl+Wiedemann have in particular to offer here?

Mario Pajuelo: One important argument in the eyes of our customers is certainly the variety of different solutions that we are able to offer for this very heterogeneous market. We are dealing essentially with two groups of applications: light transports up to 15 kg and heavy transports of over 15 kg. For many years the rule was: light transports are driven by DC motors, heavy transports by AC motors.

As the AC motors with integrated inverters became increasingly efficient as well as smaller, the two groups became mixed. In the meantime the distinction is rather based on the type of loading: packages or pallets. Our portfolio includes the optimal solution for any application: for DC motors for example we are compatible with Interroll, Itoh Denki, Rollex, Pulse and RULMECA – and with AC motors we are compatible with Lenze and SEW. Then there is our unique range of Gateways for the communication with virtually any fieldbus. This means: regardless of which PLC and which motor our customers choose, with Bihl+Wiedemann they are always on the safe side.

ASi MASTER NEWS: And what is the role that ASi Safety plays here?

Mario Pajuelo: Of course there are now safety solutions for many fieldbuses. But for this special kind of applications only very few safe signals are generally installed – and even then they are spaced

widely apart. With our safety modules even one single signal can be decentrally collected. And if you consider the freedom of topology, the practical noise immunity, the great flexibility in cable routing and no least the costs, ASi Safety cannot be beaten.

ASi MASTER NEWS: Is cost effectiveness also one of your assets when it comes to standard applications?

Mario Pajuelo: Absolutely. This starts with the fact that thanks to the piercing technology in the IP67 field modules no additional connectors are needed for connecting fieldbus and power supply. However, the biggest potential for savings is provided by the decentral signals. Without AS-Interface two to three sensors plus the motor of each conveyor unit would have to be individually wired to the PLC. With ASi one single module suffices for combining all the components into one system. In addition to the cost savings there is another decisive advantage: the

system builder can test his conveyor units without great effort before shipping, preventing problems for example during commissioning – an option which especially the manufacturers of larger systems appreciate.

ASi MASTER NEWS: Have you become integrated with the global players among the machine builders in the Spanish market, or is it more domestic manufacturers who set the tone?

Mario Pajuelo: Of course many large machine builders are represented with subsidiaries in Spain as well. But there are also a large number of Spanish companies in this sector. To be able to serve their needs even better in the future we opened a new location in Terrassa in the province of Barcelona. The boom in the logistics sector can continue to grow as far as we are concerned – we're ready for it.

ASi MASTER NEWS: Mr. Pajuelo, we thank you for the conversation.



Mario Pajuelo is Business Development Manager Iberia at Bihl+Wiedemann.

AS-INTERFACE HIGHLIGHTS

New Active Distributors / Passive Distributors

- ✓ Especially flat form factor, can be installed in cable duct (19 or 35 mm deep)
- ✓ Connection of ASi / AUX using profile cable
- ✓ Protection rating IP67



Active Distributors:

	Article number	Type	Inputs	Outputs	Input voltage (sensor supply)	Output voltage (actuator supply)	Connection of ASi	Connection of periphery	Protection rating
	BWU3602	Active Distributor ASi, 2I/2O	2 x digital	2 x digital	out of AUX	out of AUX	ASi profile cable	2 x round cable / connection leads	IP67
	BWU3640	Active Distributor ASi, Motor Module for Lenze Smart Motor	4 x digital	3 x digital	out of ASi	out of ASi	ASi profile cable	1 x M12 socket (straight, 8-pin) + 2 x M12 socket (straight, 5-pin)	IP67
	BWU3633	Active Distributor ASi, 4I	4 x digital	-	out of ASi	-	ASi profile cable	4 x M12 socket (straight, 5-pin)	IP67

Active Distributors ASi Safety:

	BWU3641	Active Distributor ASi Safety, 1SI	1 x 2-channel for complementary switches	-	out of ASi	out of ASi	ASi profile cable	1 x M12 socket (straight, 5-pin)	IP67
	BWU3718	Active Distributor ASi Safety for Leuze MLC 530 SPG	1 x 2-channel	2 x digital	out of ASi	out of ASi	ASi profile cable	2 x M12 socket (straight, 1 x 8-pin, 1 x 5-pin)	IP67

Passive Distributors:

BW3681: Passive Distributor ASi / AUX with internal fuse

- With internal fuse:
 - ✓ 4 A slow-blow fuse for AUX
 - ✓ 1 A self-resetting fuse for ASi
- Connection of periphery / of internal fuse using 1 x M8 Snap-In socket (straight, 4-pin)



BW3803: Passive Distributor ASi / AUX

- Connection of periphery using 1 x M12 socket (5-pin)
- New flat housing with coated M12 body of socket



More Bihl+Wiedemann news at SPS IPC Drives

ASi 3.0 PROFINET Gateways with OPC UA server und new webserver



■ In addition to the EtherNet/IP Gateways the new PROFINET Gateways are now also equipped with OPC UA and new webserver ■ PROFINET and OPC UA in one device ■ OPC UA server as interface for OPC UA communication ■ New webserver for remote maintenance ■ Extremely fast: significantly improved cycle time over PROFINET ■ Integrated switch ■ Expanded diagnostic capabilities such as duplicate address detection, earth fault detector and EMC monitor ■ Optional with integrated compact controller Control III, programming in C ■ Available as: ✓ Single Master (BWU3758) ✓ Double Master with 1 Power Supply for 2 ASi networks (BWU3759) ✓ 24 Volt ASi Gateway (BWU3760) as cost-effective solution for small systems

M8 Modules with 8 sockets – ASi Digital Modules in new housing

■ Digital I/O modules in new housing with eight M8 sockets ■ Same dimensions as housing for 4 x M12 socket (45 mm x 80 mm) ■ Connection of ASi and AUX using profile cable ■ Protection rating IP67 ✓ **BW3521**: • 8 digital inputs • Input voltage provided from ASi ✓ **BW3661**: • 4 digital inputs • 4 digital electronic outputs • Input voltage provided from ASi • Output voltage provided from AUX (24 V auxiliary power)



ASi Light Button Module (BW3474) ■ ASi Light Button Module, lighted (white/blue) ■ 2 holes for screw mounting ■ Connection of ASi using M12 plug ■ 1 AB slave ■ Protection rating IP54

Bihl+Wiedemann Suite with ASi Control Tools360 (BW2902)



■ ASi Control Tools360 with hardware catalog for simple integration of standard products ■ Simple configuration and commissioning of IO-Link sensors by implementation of the IO-Link configuration tool in the hardware catalog ■ Online diagnostics ■ Explicit symbol for every type of error ■ More detailed information about the respective slave and any possible problems as well as recommended solutions ■ Intuitive operation, also suitable for beginners ■ Tutorials on how-to-use on the website



ASi 3.0 PROFIsafe via PROFINET Gateway with safe operating mode selection (BWU3823) ■ Certified module in the Safety Monitor assists the user in implementing safe operating mode selection using an HMI ■ PROFIsafe, Safe Link and ASi Safety in one device ■ OPC UA server as interface for OPC UA communication ■ New webserver for remote maintenance ■ ASi 3.0 PROFIsafe via PROFINET Gateway with integrated Safety Monitor and Safe Link ■ Double Master with 1 Power Supply for 2 ASi networks ■ Integrated switch ■ 6 fast electronic safe outputs ■ 3 two-channel safe inputs built-in ■ Chip Card for storing configuration data ■ Applications up to SIL3, PLe

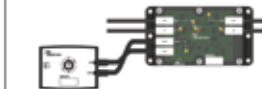


ASi 3.0 Motor Module, IP67, M12 for 24 V motorized rollers from Itoh Denki (BWU3804) ■ Extends the range of ASi 3.0 Motor Modules in IP67 ■ Control of 2 x 24 V motorized rollers from Itoh Denki (PM500ME/XE/XP, PM605ME/XE/XP) ■ 2 digital inputs for sensors ■ 4 digital outputs, 2 analog outputs ■ Input voltage provided from ASi ■ Output voltage provided from AUX (24 V auxiliary power)

■ Connection of ASi and AUX using profile cable ■ Connection of periphery using 4 x M12 socket (5-pin) ■ Protection rating IP67

Cable Duct ASi 3.0 Motor Module for two 24 V motorized rollers (BW3813)

■ New in the range of Cable Duct ASi 3.0 Motor Modules ■ Motor module for controlling 2 x 24 V motorized rollers, e.g. Interroll (EC310) or RULMECA (RDR BL-2) ■ Especially flat form factor (Motor Module & Passive Distributor), can be installed in cable duct (19 mm deep) ■ 4 digital inputs ■ 2 digital outputs, 2 analog outputs ■ Input voltage provided from ASi ■ Output voltage provided from AUX (24 V auxiliary power) ■ Connection of ASi using profile cable, integrated Passive Distributor ■ Connection of periphery: ✓ Motors: 2 x M8 socket (straight, 5-pin) ✓ Inputs: 2 x M12 socket (straight, 5-pin) ■ Speed setting using ASi parameters ■ Cable length of motor connections: 0.60 m ■ Cable length of input connections: 1.00 m ■ Protection rating IP54



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Publisher

Bihl+Wiedemann GmbH
Flosswoerthstrasse 41
D-68199 Mannheim
Phone: +49 (621) 339960
Fax: +49 (621) 3392239
info@bihl-wiedemann.de
www.bihl-wiedemann.de

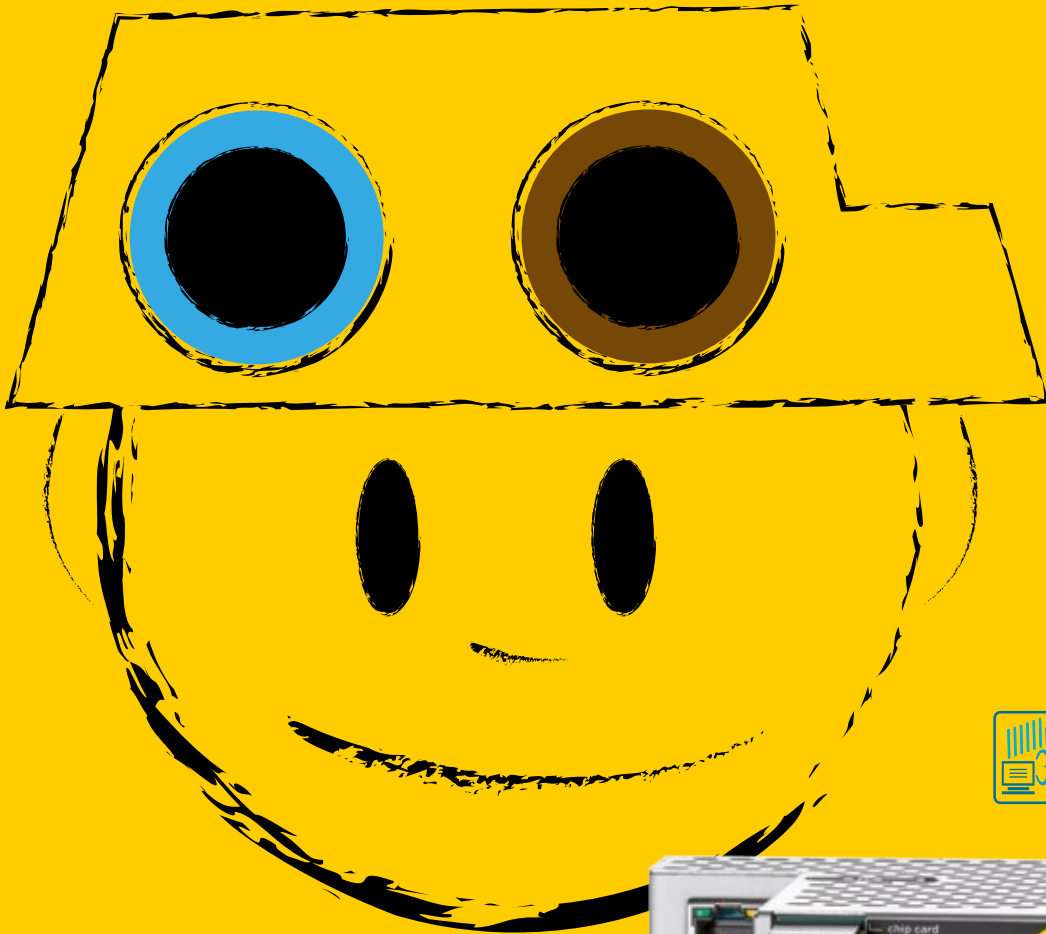
Created by

MILANO medien GmbH
Hanauer Landstraße 196A
D-60314 Frankfurt am Main
Phone: +49 (69) 48000540
Fax: +49 (69) 48000549
info@milanomedien.com
www.milanomedien.com

Edited by:

Peter Rosenberger
Phone: +49 (6201) 8438215
rosenberger@milanomedien.com

Safety@work!



sps ipc drives

hall 7, booth 109

hall 7, booth 200

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Simple safety technology for greater efficiency

- › Safety technology with ASi Safety at Work: only one cable for data and power - easy to use, independent of system and manufacturer, approved
- › PLC connection via all common fieldbuses, all diagnostic data in the controller, safety and standard signals mixed
- › Safety Gateways for use as Safety Slave (in combination with a safety controller) and as Safety Master (for safely controlling drives without an additional safety PLC)
- › Safe Link over Ethernet: The simplest way of coupling many safe signals
- › Universally expandable with Safety I/O Modules + Standard I/O Modules in IP20 or IP67 and with a multitude of other modules for a wide range of applications



More information on your application safety at:
www.bihl-wiedemann.com



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THE AS-INTERFACE MASTERS