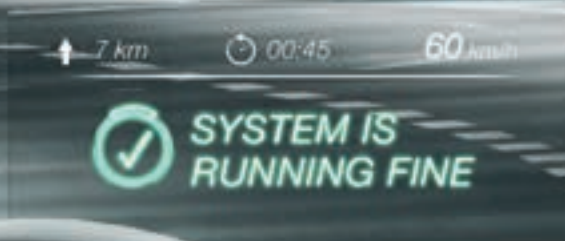


# AS-INTERFACE MASTER NEWS

THE BIHL+WIEDEMANN MAGAZINE



INTERVIEW

**Why even elephants  
benefit from our webshop**

NEW DIAGNOSTIC SOFTWARE

# EVERYTHING IN THE GREEN ZONE



## New Diagnostic Software

# EVERYTHING IN THE



**In the ranking of the simplest bus systems in the world AS-Interface has long occupied undisputed first place. With the new diagnostic software from Bihl+Wiedemann working with AS-i has now become even easier: this convenient tool constantly monitors the fitness of the entire network, provides concrete recommendations at the push of a button when there is an issue – and makes it possible even for non-specialists to quickly solve any potential problem.**

Not that it's an exact analogy, but the comparison with the on-board computer system in a modern high-tech automobile does provide a first-glance and even useful starting point for understanding what the new diagnostic software from Bihl+Wiedemann can do within AS-Interface networks. At first glance they both do the same thing: they check the functions and interactions of all the

connected electronic components. When everything is running fine, they give a thumbs-up. When it is not, they tell you where the problem is.

The obvious effect for the user is therefore nearly identical: both tools make even complex systems manageable for non-specialists as well. The technological processes for the complete fitness check

run in the background – the messages the user receives are formulated clearly and unmistakably. In the ideal situation, which of course should be the normal situation, they say everything is OK. Even this alone is seen as a huge benefit for most users: the good feeling that everything has been checked and found to be in order. And even when there is a problem there are specific indicators and no complex explanations.

# GREEN ZONE

“What the user wants is not the diagnostic information per se, what he really wants to know is what he needs to do right now in order to eliminate the problem,” says Managing Director Jochen Bihl.

## The electronic AS-i fitness coach creates new freedom for the user

At second glance there are to be sure certain differences between an on-board computer and a diagnostic software that become apparent. Whereas the automotive version sends his driver to the repair shop for even trivial defects, the electronic AS-i fitness coach provides very specific suggestions for eliminating the problem – for

example, which slave needs to be replaced for the system to get back up and running. “Of course, our software itself can’t fix the problem,” notes Jochen Bihl. “But it can propose actions that even non-specialists can understand and often even perform themselves.”

In the actual factory and process automation this means a whole new degree of freedom in planning deployment of workers. In everyday production the simple operation of the system has long been known for making it possible to operate AS-Interface networks using machine personnel who have little to no special AS-i know-how. Thanks to the new diagnostic software even these same employees are now able to remedy minor faults without the assistance of expert colleagues. And for the producing companies who until now

have shied away from jumping into this bus technology before they have no appropriately trained specialists in their ranks, now the last hurdle in the way of an efficient future beyond antiquated parallel wiring has been eliminated.

## The new diagnostic software performs valuable services even for more complex problems

But the new diagnostic software can do even much more: it not only determines that a slave has failed, it also gets to the bottom of why. Here is an example from real life – as it happened at a long-time Bihl+Wiedemann customer:



After a safety unit kept shutting off for no apparent reason, a particular slave was identified as the cause of the problem. But after replacement the problem kept happening. With the help of the technical support at Bihl+Wiedemann the user then made use of the error history to quickly determine that the actual cause of the shut-offs was not a defective slave but sporadic earth faults. These could be immediately rectified and the system ran smoothly again. "Our objective in this development was for our new diagnostic software to do just this autonomously," says Jochen Bihl. "Thus, it detects that a slave has failed and at the same time that there is an earth fault – and draws the logical conclusion that one was the cause of the other."

But even when the connections are far more complex the new diagnostic software provides valuable assistance in troubleshooting. It permanently stores all diagnostic data for each device for up to

24 hours. Based on this information and based on the raw data from the measuring logs it is usually easy for the technical support at Bihl+Wiedemann to get to the heart of the problems and quickly help right on the telephone – without the customer having to wait for a technician to actually travel to the site.

**The data was already there, the intelligent frontend maximizes their usefulness**

The development of this diagnostic software with significantly expanded performance capability, which is unique to the entire automation sector, was "just" the logical extension of a strategy that has already been pursued for years. With each new

Gateway generation the range of values which the devices can measure has been continually expanded in the most cost-efficient way possible. "The data was already available," says Jochen Bihl. "It was just a matter of designing an intelligent frontend that processes all this information in a way that brings the most benefit to the user."

But none of this means of course that the development is finished. The company located in Mannheim may have come a long way towards realizing their vision, but they are far from content, as Jochen Bihl emphasizes. "That won't happen until I go to a customer and he says to me: 'For a long time I was grateful for your technical support. But actually you could as well dissolve this department, because now there isn't a single problem that I myself can't solve with the help of your diagnostic software.' But there's still some work to do before we reach that point."



### Diagnostic Software from Bihl+Wiedemann

- Analysis of standard information such as electrical monitoring of voltage, current and symmetry as well as configuration, peripheral and telegram errors
- Additional analysis of AS-i Safety at Work using diagnostics of the safe inputs and safe code sequences as well as the safe outputs and the Safe Link connections
- Readout of the diagnostic buffer
- Differentiation of earth fault errors
- Pop-up window with specific information and solution proposals offer direct “help for self-help” options for errors that occur during the test
- Documentation of the AS-i installation (of the AS-i Gateway including all AS-i networks and all connected slaves)
- Recording time between one minute and 24 hours possible
- Automatic start of the diagnostic software using parameters in the PLC possible
- Automatic creation of a detailed test report for direct viewing as a PDF possible
- Ability to get further support from the technical experts at Bihl+Wiedemann by sending all relevant system information directly at the push of a button

Interview with Jan Melter, Head of Marketing at Bihl+Wiedemann

# Why even elephants benefit from our webshop

Long before it occurred to some of their major competitors, Bihl+Wiedemann began as early as September 2014 to construct webshops for customers all over the world. Marketing Manager Jan Melter spoke with AS-i MASTER NEWS about important milestones, exorbitant sales increases, dealing with the trade embargo – and about elephants in the African rainforest who are getting refreshment with the help of AS-Interface.

**AS-i MASTER NEWS:** Mr. Melter, the vast majority of your products and systems are used in production operations in industrial countries where they increase production efficiency in accordance with their purpose. But in 2016 one of your Gateways took over a rather exotic function: it's involved in the refreshment and skin care of elephants in the African rainforest. How did this come about?

**Jan Melter:** This is probably the most unusual work location for any AS-i Master that we have shipped through our webshop. The order came from a customer in Cameroon. They had a pump controller for an elephant pool in a wildlife preserve in the middle of Africa. And as far as we know

everything is running as it should – at least, we haven't heard of any issues.

**AS-i MASTER NEWS:** From how many countries can customers order in your webshop?

**Jan Melter:** As of today there is access from 152 countries. The number fluctuates a bit, mainly because we have to take into account the current embargo list of the Federal Office for Economic Affairs and Export Control. Potential customers from any sanctioned countries cannot order from us either.

**AS-i MASTER NEWS:** And from how many countries have you already received orders?

**Jan Melter:** At the moment the number is around 30. The vast majority of our webshop customers are of course from Germany. In general, these are medium-size companies or dealers, since the special, often project-specific agreements with our large, long-term partners are difficult to show in this format.

**AS-i MASTER NEWS:** Are such assistance-intensive products like components in automation technology actually appropriate for a webshop?

**Jan Melter:** The question as to how you solve specific technical challenges with an individual system concept is of course difficult to answer online. But this is not



Jan Melter is Head of Marketing at Bihl+Wiedemann

what our web customers expect: they are purchasing mainly replacement parts or software, which is for the most part self-explanatory.

**AS-i MASTER NEWS:** In 2016 you increased sales from your webshop by more than tenfold compared with the previous year. Is there a secret to this success?

**Jan Melter:** It's not really a secret. From my view there are mainly two things responsible for the great acceptance. For one there are the general virtues of a webshop: it's open 24 hours a day, and when I order something here, I can cross this item off my agenda and don't have to wait for the next steps. When I purchase a software package it's delivered immediately by download. The second factor is that we offer our web customers the ability to assign their own notes or internal article numbers to their orders, which makes cumbersome after-the-fact association with orders superfluous.

**AS-i MASTER NEWS:** Can this rate of growth be sustained?

**Jan Melter:** On one hand the growing degree of familiarization with our online offering will surely result in increasing demand going forward. On the other hand you have to remember that the 2015 figures were from a year when we were still building the platform.

**AS-i MASTER NEWS:** How exactly did you proceed chronologically?

**Jan Melter:** When we kicked off the German webshop in September 2014 you could only download software products. Beginning in March 2015 we then expanded the offering to all products shown on our webpage. Austria and France followed in June of 2015, and in November 2015 the partnerships for sales partners around the world and the international shop for those countries who have no special country webpages. In

December 2015 we added Scandinavia, Spain, Portugal, Switzerland and the USA. Since January 2017 our US-American subsidiary has also maintained two additional shops in Canada and Mexico. Orders that come from there are shipped directly from the USA, and all others from our headquarters in Mannheim.

**AS-i MASTER NEWS:** Since the opening of your first webshop for software in Germany around two-and-a-half years have passed during which you must have given much thought to optimizing. How does that look?

**Jan Melter:** We have always implemented minor practical improvements on an ongoing basis, and I don't see that changing: it's not a matter of making one big improvement for the sake of usability, but rather many incremental changes.

**AS-i MASTER NEWS:** Mr. Melter, thank you for speaking with us.

## Active Distributors

# Do whatever you want



**Does the sensor, button or switch have an interface to AS-i? This used to be a key criterion for AS-Interface users when selecting their modules. Now the sky is the limit: the Active Distributors with integrated AS-i chip from Bihl+Wiedemann open up a world of freedom in designing your systems.**

The most appealing success stories are often the ones you never saw coming. At least not in this dimension. When the AS-Interface Masters at Bihl+Wiedemann introduced their Active Distributors with integrated AS-i chip more than a year ago,

they actually assumed that they had started a traditional problem solver: "We knew already from many discussions with customers that just such a product was missing on the market," recalls Christian Lang, Director of Sales for Germany at Bihl+Wiedemann.

"But we obviously underestimated how impatiently the market was waiting for it. Not only to respond to specific and current demands in the most elegant way possible, but also to ensure the greatest possible flexibility for future requirements." In other

## Active Distributors for incorporating sensors, buttons and switches into AS-i



Active Distributors from Bihl+Wiedemann allow a wide range of sensors, buttons or switches to be made AS-i capable for use in the AS-Interface network with little effort.

words: the Active Distributors found favor with customers as pressing problem solvers – as the keys to freedom in designing systems they are an absolute bestseller.

The difference is easy to explain. Originally the developers at Bihl+Wiedemann were thinking in terms of two typical application cases for the Active Distributors: One when the customer wants to connect an additional sensor with individual I/Os to an already existing Passive Distributor, and the other when he wants to use special sensors which are not available with AS-i capability or whose pin configuration is unusual. In such cases he used to have to resort to cumbersome special adapters. With the Active Distributors incorporation

into the AS-Interface network is now utterly simple thanks to the integrated AS-i chip and without any additional hardware.

This is just where the “misunderstanding” arose: whereas the AS-i experts from Mannheim at first wanted to develop “just” an efficient solution for very particular applications, customers saw in it much more. They understood immediately that this product which was at first glance fairly unassuming in fact opened entirely new perspectives in selecting the individual modules they wanted to install in their production equipment.

“Whether a sensor, switch or button has an interface to AS-i or not is ultimately just one criterion of many,” affirms

Johanna Schüßler, Product Manager at Bihl+Wiedemann. “Aspects such as form factor, electromagnetic characteristics and scope of functions play a similarly large role.” The fact that the Active Distributors now allow even components without an interface to AS-i to be easily integrated into the application means mainly one thing to customers: in the future the sky is the limit when it comes to picking out that one device that is best suited for the application.

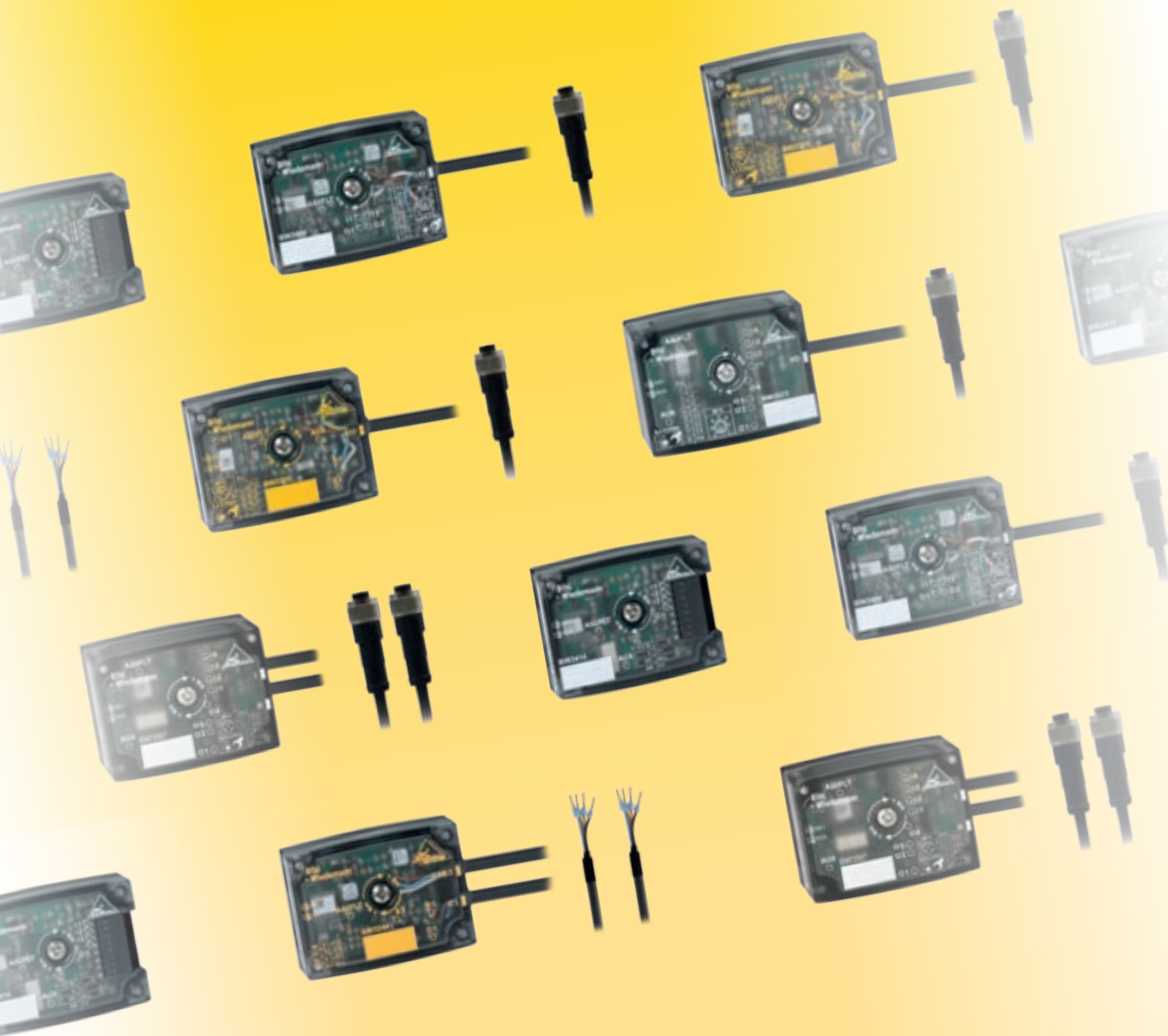
To make these active multi-talented products ready for truly any application and especially to account for individual cable routing scenarios, the developers paid special attention to a form factor optimized for the installation in a cable duct.

### Active Distributors AS-i Safety for incorporating safe sensors, buttons or switches



### Active Distributors AS-i for incorporating standard sensors, buttons or switches





In addition, a great variety of components can be connected. The Active Distributors are available as Safety Input Modules with a two-channel safe input (SIL3, PLe) and a standard output as well as digital I/O Modules – currently already available as 2I/10 Modules, 2I/20 Modules, 3I/10 Modules, 4I Modules, 4O Modules or 4I/4O Modules. And safety in case of short circuits

is also provided for. Already integrated into the devices as an option is protection in the form of either four 4 A replaceable fuses or four 1 A self-resetting fuses.

In view of the huge demand they have already begun in Mannheim to continually expand the product offering – both with respect to the performance level and

in terms of connectivity options: in the meantime the Active Distributors from Bihl+Wiedemann can process up to eight signals with over 15 perfectly preassembled cable and connector combinations available. “And if we don’t have exactly the version the customer needs within our range,” says Product Manager Johanna Schübler, “we can change that in a very short time.”

# Bihl+Wiedemann News at HANNOVER MESSE

**Hall 9,  
Booth H01**

## AS-i 3.0 Sercos Gateway with integrated Safety Monitor and Safe Link for Schneider drives (BWU2984)



- Safe control of Schneider drives using Sercos and Safe Link
- Gateways can communicate as a safety slave with a safety controller from Schneider

Electric (SLC) ■ Version "1 Gateway, 1 Power Supply for 2 AS-i networks"

- 2 AS-i Masters in one Gateway, Sercos slave
- 3 two-channel safe inputs built-in, expandable with up to 62 two-channel safe inputs
- 6 independent safe outputs built-in, expandable up to a maximum of 64 independent safe outputs
- Chip Card for easy device replacement
- Applications up to SIL3, PLe

## Fast Logic functionality in Multi I/O Modules



- Extremely fast safe output response time
- Logic in the device
- Encapsulation of functions that require very fast response times
- Deterministic timing as it is independent of the Safety Monitor
- Functionality contained in Multi I/O Modules such as BWU2578

## Digital Module AS-i 4I/4RO, IP20 (BWU3435)



- Extends the range of AS-i IP20 Digital Modules
- 4 digital inputs
- 4 relay outputs (230 V / 30 V)
- Input voltage out of AS-i
- Connection via 6 x COMBICON terminals
- Optimized for use in the central control cabinet

## AS-i Counter Module, IP67, M12 (BWU3453)



- New in the range of Function Modules
- 2 x 1-channel input for standard sensors
- Input voltage out of AS-i
- AS-i connection using AS-i profile cable
- Peripheral connection via 2 x M12 socket, 5-pin
- Counts pulses up- and downward and displays the result via AS-i as 16-bit value
- Protection rating IP67

## AS-i Safety Output Module 1SO/3I/1EDM, IP20 (BWU3398)



- 3 AS-i Modules in one housing: Safety I/O, Standard I/O, Diagnostic Slave
- 1 EDM input and 3 standard inputs
- 1 release circuit (2 safe electronic outputs), augmented reliability
- 3 A per output
- In- and outputs powered from AUX
- Connection via 4 x COMBICON terminals
- 22.5 mm wide
- Protection rating IP20

## Cable Duct AS-i 3.0 Motor Module for two 24 V motorized rollers, with addressing socket (BW3409)



- Optimized for installation in the cable duct with especially flat form factor of Motor Module (W x H x D: 90 x 60 x 18 mm) and Passive Distributor (W x H x D: 60 x 45 x 19 mm)
- Control of 2 x 24 V motorized rollers, e.g. Interroll (EC310) and RULMECA (RDR BL-2)
- 4 digital inputs
- 2 digital outputs, 2 analog outputs
- Sensor inputs powered out of AS-i
- Outputs powered out of AUX (24 V auxiliary power)
- Connection of AS-i

and AUX using AS-i profile cable, integrated Passive Distributor

- Peripheral connection: ✓ Motor: 2 x M8 socket, straight, 5-pin
- ✓ Inputs: 2 x M12 socket, straight, 5-pin
- Speed setting using AS-i parameters
- With addressing socket for connecting an AS-i address programming device
- Protection rating IP54

## Digital Module AS-i 4I/30, IP67, with up to 2 A output current (BWU3496)



- 4 digital inputs
- 3 electronic outputs
- Inputs powered out of AS-i
- Outputs powered out of AUX
- Up to 2 A output current possible
- Connection of AS-i and AUX using profile cable
- Connection of periphery using 7 x M12 socket, 5-pin
- With addressing socket for connecting an AS-i address programming device
- Protection rating IP67

## IMPRINT

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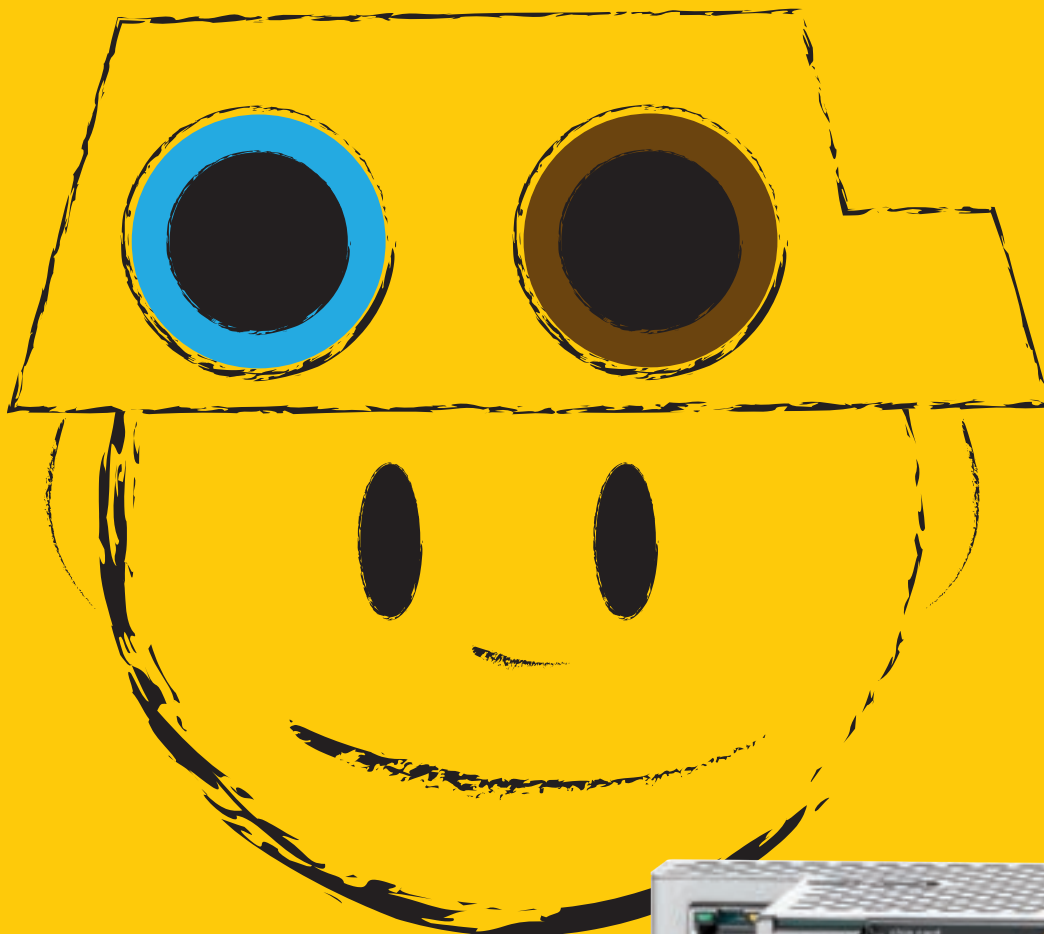
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# Safety@work!



## Simple safety technology for greater efficiency

- › Safety technology with AS-i 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](http://www.bihl-wiedemann.com)



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