The all new AS-Interface:
Digitalization on a new level.

ASi-5
THE SHUTTLE INTO DIGITALISATION.
Introduction

Dear Readers,

AS-Interface already made history. Worldwide more than 37 million nodes installed and more than seven million AS-Interface Safety at Work safety switches in the field set a clear signal: AS-Interface is vastly successful. All this is based on strong partners who made this success possible.

What do we all have in common? We are never satisfied with the current status and are proudly facing the challenges of digitalization. Therefore, we further improved the powerful AS-Interface technology – presenting the cutting-edge shuttle ASi-5, an ultramodern solution for the age of digitalization, and we made it available for you today. After all, new technologies are only useful if they evolve to our increasing needs.

Sincerely yours,

Rolf Becker

The future of communication is digital. And yellow.

ASi-5: the shuttle into digitalization.

Automation is becoming increasingly faster, more complex, more digital. And, ASi-5, the standardized system for the lower field level, makes automation easy, safe, fast, and efficient.

Industry 4.0 and the Internet of Things continue to advance digitalization. It is crucial for the perfect automation communication system to exceed current as well as future requirements, creating the most cost-effective solution.

Hence, we advanced the powerful standard of AS-Interface and created ASi-5, perfectly meeting these requirements through connecting actuators and sensors to the higher-level control system and the cloud. ASi-5 uses a single cable to set up a network by using a simple and flexible installation technology. The single two-conductor cable transmits data and energy simultaneously.

This makes ASi-5 the most advanced bus system for automation: Sensors and actuators handle an increasing amount of data that can be transported without any restrictions to the locations where they are processed. ASi-5 cost-effectively and efficiently offers the required bandwidth, while remaining downward compatible. After all, investment security is an important factor when considering an automation system.

In short: ASi-5 guides your communication into the digital age – and transports your automation system to where it belongs: on the level of ideal cost-effectiveness.
AS-Interface is the certified, decentralized and powerful feeder system that perfectly manages data communication on the actuator/sensor level in all areas of automation technology – minimizing acquisition and engineering costs at the same time. The new generation ASi-5 raises this standard to a new level.

The new ASi-5 standard links the commonly available actuators and sensors of the lower fieldbus level to the upper Ethernet-based level even more efficiently, flexibly, and reliably. The facts prove this:

- Cycle times are four times shorter with 1.2 ms for 24 connected devices
- Data width of 16 bit to 32 byte per device
- Twice the network length with 200 m per segment
- Up to 96 connected devices
- Additional diagnostics channel concurrent to the process data

Furthermore, ASi-5 is a strictly deterministic system: Inputs and outputs can be prioritized up to 1.2 ms.

A pioneering standard cannot just be replaced. We tailor it for the future.

ASi-5: increased performance.

The result: considerably more design options, the possibility for larger stand-alone applications, and reduced overhead costs. Additionally, ASi-5 permits the cost-efficient reading of a larger number of inputs and outputs in one location.

ASi-5 also significantly improved operational performance and maintenance of the system: Continuous monitoring of the transmission quality enables fast and detailed diagnostics. Additional to single device addressing, devices can be addressed easily and quickly through the ASi-5 master even after installation. Here, ASi-5 prevents physically addressing two devices with the same address.

In short: ASi-5 increases the system’s performance, while simultaneously reducing costs.

96 connected devices
1.2 ms cycle time
16 bit process data
96x16 safe inputs/outputs
Increased diagnostics
Integrated IO-Link

Increased IO-Link
ASi-5 is topology-free, additionally simplifying the design of the system and guaranteeing installation flexibility – without cost-intensive switches or active distribution. Feasible for the future, ASi-5 technology and protocol standard are fully downward compatible. AS-Interface devices and components used in the past can be integrated into ASi-5. Vice versa, the existing AS-Interface applications can continue to be used without restrictions, with the option of integrating new ASi-5 components.

In short: Simply said, ASi-5 sets new standards.

Innovations concentrated. On the essentials.

ASi-5: intelligent communication.

Innovation is key to successfully designing digitalization, continuously revising the results as far down as to the basics of automation technology where actuators and sensors are connected. To us successful communication is straightforward: multi-lateral thinking.

ASi-5 transmits energy and data on the same cable, the only fieldbus system that does not need plug connections to link energy and data. The advantage: Common cable harnesses in parallel wiring are replaced by the reverse polarity protected ASi-cable, rendering the system electromagnetically compatible (EMC) without additional cost-intensive shielding.

ASi-5 also allows the uncomplicated and cost-efficient integration of IO-Link or other systems, for instance HART: The host systems simply provide the interfaces, creating multi-point connections. Parameter and diagnostics data can be concurrently transmitted independently from process data – in any amount necessary. This makes ASi-5 the ideal shuttle connecting IO-Link devices to upper level Ethernet fieldbus systems (see Fig. 1).

With ASi-5 even the integration of safety is highly efficient: Safety-critical and conventional applications run on one infrastructure and can be mixed and matched without restrictions, with ASi-5 enabling operation of 96 x 16 safe inputs and outputs.

Compared to parallelly wiring every single sensor and actuator, ASi-piercing technology (see Fig. 2) makes connecting, replacing or moving of components seem like child’s play: easy, safe, fast, and inexpensive. Systems can be easily and quickly extended; hot plug-in is possible anytime and anywhere. Design and documentation can be done almost effortlessly. New components can be integrated into the system without complex construction calculations.

In short: Simply said, ASi-5 sets new standards.
ASi-5 is the new shuttle for the Ethernet fieldbus system with its roots based on the proven concept of an efficient and flexible connection on the actuator/sensor level.

A cost-efficient network has always been central to AS-Interface. Therefore, we stayed true to this aspect, but raised it to a higher level. For increased cost-effectiveness. For even more flexibility. For increased speed. For maximum security. All in a system that is completely downward compatible and suited to prepare you today for the digital requirements of tomorrow.

Everything is revised. Except for the concept.

ASi-5: thinking ahead.

Want more information about ASi-5?

Additional information about the new trendsetting standard of AS-Interface can be found at www.asi-5.net.

AS-International Association e.V.
Zum Taubengarten 52
63571 Gelnhausen

Tel. +49 6051 47 32 12
info@asi-5.net
www.asi-5.net