



## iTAS: Innovative AGV drive technology with integral Industry 4.0 connectivity

At the upcoming Hannover Messe 2016, WITTENSTEIN motion control GmbH (Hall 15, Stand F08) will present iTAS, the first fully scalable and modular toolkit for automated guided vehicle (AGV) systems, featuring an even more powerful version of the simco® drive as well as integral web server functionality. The new servo amplifier version with up to 50 A nominal current provides a wider output range and the highest possible control connectivity. The web server on board enables online, platform-independent communication with the servo amplifier, for example in order to check the operating parameters or important driving and status information. Thanks to this Industry 4.0 connectivity, both the iTAS and the AGV are optimally – and very efficiently – available.

Modular drive technology based on a toolkit as a complete, integration-friendly and optimally aligned system from a single supplier – this is the concept underlying WITTENSTEIN motion control's iTAS servo drive system. The "i" stands for "interactive operation via a web server, intelligent plug & play drive concepts for AGVs even when space is limited and individually scalable drive solutions based on application-specific feature packages. As a fully scalable and modular drive system, iTAS sizes 004 to 050 can be engineered in three different packages: "compact", "advanced" and "performance". Users can also choose from a set of feature options like an additional SICK speed sensor and an integral wheel with frame attachment that allows the drive bearing to be optimally utilized.

### Toolkit now complete

Like the other servo drives in the series up to 750 W, the new simco® drive servo amplifier version unites high-resolution current control with extremely fast current sensing. However, these exciting characteristics are only two of the numerous features that make iTAS – a complete system encompassing everything from the actuator to the controller – the ideal drive solution for automated guided vehicle systems and electrically powered industrial trucks. Both the iTAS 025 size – and in some cases also the 050 – can be used with the new servo drive, depending on the application.

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High-tech products made by WITTENSTEIN fly into space and win Formula One races. Intelligent drive systems – from the world's smallest high-performance servo drive to the latest state of the art in medical technology – are developed, produced and marketed by a team of around 1900 employees. With a blend of dedication and enthusiasm, we set benchmarks – every day – worldwide.



iTAS – modular toolkit for AGVs from WITTENSTEIN motion control

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### **Integral web server: Industry 4.0 compliant connectivity**

The web server which is stored in the simco® drive enables mobile online access to the built-in servo drive. The system load can be checked at any time, permitting a prompt and targeted response to errors or warnings. Furthermore, the intelligent provision of data in the web server makes start-up easier and facilitates continuous condition monitoring while the vehicles are in service – an immense advantage that increases the availability of the AGV system overall.

### **Compatible with all standard fieldbus interfaces**

Open and closed-loop speed control are generally realized in the AGV with a PLC. To ensure the necessary communication flexibility, the new simco® drive also ships with several standard fieldbus interfaces such as CANopen, EtherCAT, PROFINET RT/IRT and TCP/IP – sufficient for virtually all the automation solutions that are normally installed in an AGV.

### **Scalable safety**

STO (Safe Torque Off) to SIL3 as per IEC 61508 is integrated in all simco® drives as a standard monitoring function. Other drive safety functions like SLS (Safe Limited Speed) or SOS (Safe Operating Stop) can be implemented in combination with a safety controller – and possibly also a safety certified encoder.

### **Acceleration sensor as a “black box”**

The integral 3D acceleration sensor is yet another feature of the simco® drives that is specifically adapted to AGV applications. It records all vehicle movements in the x, y and z directions. It detects limit violations by measuring the magnitude of an absolute acceleration and saves these events in the EEPROM of the servo amplifier together with a time stamp. If an AGV collides due to the fault of another vehicle, the collision can be reconstructed very efficiently in this way. The forces acting on the vehicle in a bend as a function of its speed or the gradient of a ramp which the AGV drives over can likewise be recorded and evaluated by means of the acceleration sensor.

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### **Functional, space-saving design**

Installation in confined areas tends to be the norm with AGVs, which is why the servo amplifier was explicitly designed as a space-saving solution with a flat housing, despite being more powerful. It can be installed in any position using the built-in cold plate. An additional heat sink can be integrated as an option to guarantee optimal heat dissipation at all times.

### **Suitable for voltages from 12 to 60 VDC**

The AGV can be supplied with power from an accumulator, a capacitor or a combination of the two. With its extended input voltage range from 12 to 60 VDC, the new simco® drive – and hence the iTAS drive system – is suited for almost any AGV power supply concept that revolves around accumulators or capacitors.

### **Smart brake control and soft start function**

To warrant safe activation of the brake function even if the battery voltage is too low or too high, the new simco® drive version has an integral buck-boost converter which steps the on-board input voltage for the brake up (boost) or down (buck) accordingly – saving space and money that would otherwise be unavoidable for a separate power supply unit. To protect the electrical components and relay contacts, the servo amplifier has a built-in soft start function which limits high input currents to non-critical values, for instance when a vehicle battery is connected.

### **iTAS – the industry solution from the drive specialist**

An extended input voltage range, an integral buck-boost converter that transforms the voltage for the drive brake, fieldbus connectivity optimized for the vehicle, integral or integratable safety functions and a three-axis acceleration sensor – the simco® drive meets the requirements of AGV applications in every respect. This is just as true for the iTAS drive system – the holistic, modular toolkit for use in autonomous vehicles, mobile platforms and electrically powered industrial trucks.

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**Photos:**

**01\_WITTENSTEIN\_iTAS\_Antriebe+Servoregler\_FTS:** iTAS by WITTENSTEIN motion control: the first fully scalable and modular toolkit for automated guided vehicle (AGV) systems.

**02\_WITTENSTEIN\_TAS025\_performance\_horizontal:** TAS servo actuator with high power density and industry-specific feature packages.

**03\_WITTENSTEIN\_simco\_Familienbild:** The simco® drive provides high levels of intelligence and safety.

**04\_WITTENSTEIN\_monitorDriveCockpit:** The web server on board enables online communication with the servo amplifier, for example in order to check the drive load or important driving and status information.

**05\_WITTENSTEIN\_indexStartPage:** Designed with maximum transparency in mind: the simco® drive web server homepage.

**06\_WITTENSTEIN\_Ausstattungsapakete:** The iTAS drive system – highly modular and scalable actuators for the perfect vehicle design.

**WITTENSTEIN AG – one with the future**

With around 1900 employees worldwide and sales of approximately €300\* million in 2015/16 (\*provisional figure), WITTENSTEIN AG enjoys an impeccable reputation for innovation, precision and excellence in the field of mechatronic drive technology – not just in Germany but internationally. The group comprises eight pacesetting Business Units with separate subsidiaries for servo gearheads, servo actuator systems, medical technology, miniature servo units, innovative gearing technology, rotary and linear actuator systems, nano technology and electronic and software components for drive technologies. Through its 60 or so subsidiaries and agents in approximately 40 countries, WITTENSTEIN ([www.wittenstein.de](http://www.wittenstein.de)) is additionally represented in all the world's major technology and sales markets.

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