

Vario-X – the decentralized solution for the automation world of the future

Murrelektronik has long since heard the automation sector's call for efficient, intelligent and simple installation concepts. Vario-X is its answer. This modular platform brings sensor and actuator systems into the immediate machine environment on a decentralized basis and offers a flexible, scalable solution for all applications. When combined with a digital twin, Vario-X takes digitalization to a whole new level. The end result is considerable time and cost savings in installation, planning, operation and servicing.

Welcome to a world where networked production and digital integration are revolutionizing automation. This transformation process is throwing up a whole host of questions for automation experts: How can the benefits of digital technologies such as AI, machine learning, IoT and big data analytics be put to effective use? How can existing systems be linked up to new digital solutions? The challenge lies in building a bridge between the past and future by connecting together analog and digital worlds. Murrelektronik is striving for a seamless, high-performance and futureproof topology.

Vario-X – an impressive concept

A successful digital transformation needs consistent decentralization. The concept at the heart of this decentralization is as simple as it is brilliant. The first step is to pack the power supply along with peripheral components such as fuses and the main power switch into small, decentralized modules. The next step is to place these compact units directly alongside the production machine, along with the industrial PCs that take care of communication and control elements for the entire system or for individual modular machine components.

The award-winning Vario-X automation platform is the perfect embodiment of this approach. It is the enabler for decentralization in industry and production. For the first time, all automation functions can be scaled as required and implemented on a decentralized basis, i.e. without a conventional control cabinet architecture. Besides being a platform, Vario-X is also an installation concept that can be adapted to suit specific purposes and customer requirements. After all, when it comes to creating an

efficient installation solution, the basic idea of “simplifying, modularizing, transferring to the field and combining technologies” is all-important – and provides the basis for building decentralized automation concepts.

“Vario-X offers 100 percent decentralized, cabinet-free automation,” says Olaf Prein, Head of Global Business Unit Automation at Murrelektronik. “Our automation platform delivers modular and transparent processes, higher added value in all areas of your company and, consequently, improved competitiveness and profitability in mechanical and plant engineering. Thanks to the integrated installation concept alone, Vario-X reduces the amount of time it takes to install a machine by around 40 percent.”

Leading the way in this regard is a newly developed installation concept from Murrelektronik for decentralized servo drive technology. One crucial component is the MQ15 DC plug-in connector, which features an innovative quick-connection system. A quarter turn is all it takes to connect up the machine system. This means that, when using pre-assembled cables, connections can be made easily, securely and – most importantly – without any errors. That saves time and thus reduces installation and planning costs.

High-performance, robust, simple

While seamlessly integrating decentralized servo drives, Vario-X ensures reliable voltage, signal and data management in the immediate machine environment. At the heart of this innovative platform are robust water- and dust-tight enclosures with IP65 protection that house the power supply, control system, switches, safety technology and IO modules. These can be easily snapped into a no less robust backplane with integrated machine construction profiles. Equipped with a multicore CPU, the Vario-X controller can meet all requirements and be easily integrated into all higher-level Industrial Ethernet networks as an open control platform. The 48 V system also offers enough power to cover virtually all areas of application.

From sensor to cloud

Vario-X is more than just a collection of backplanes, control modules, cables and so on. A machine system that is automated with Vario-X can also be accompanied by a digital twin. This versatile 1:1 virtual representation contains all the functions and parameters of the future, real-life system – and can be created as early as the project phase, before the first mechanical component has even been ordered or fitted. To do that, Murrelektronik takes the engineering files for machines and systems and

creates a kinematic model using special software that can then simulate subsequent movements and sequences. As a result, innovative applications can be implemented with ease, such as visualizing and controlling the digital system via augmented reality (AR) using a smartphone or tablet. The digital twin can also monitor the machine system as it operates and can read out machine data.

An efficiency booster for production

Ever-growing demands relating to energy efficiency in production and manufacturing can also be supported on a dynamic basis. Take pneumatics, for example, a technology that is very widely used, but can have an efficiency rating of just 10 to 20 percent if it wastes a lot of energy due to countless system air leaks and inefficient actuators. Vario-X offers a really simple means of electrifying system components that have previously been operated pneumatically. In fact, replacing pneumatics with electrics – for instance on clamping units in bodywork production – brings nothing but advantages all round. Business owners can reduce the amount of inefficient, difficult-to-control and relatively expensive pneumatics in their workshops, production planners can focus on a single energy source (electricity), staff can finally work in noticeably quieter conditions and, of course, the environment benefits, too.

Press Release



Caption: Vario-X is a modular and highly flexible automation platform that can be used to implement all automation functions on an entirely decentralized basis for the first time.

Image: Murrelektronik GmbH



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Caption: *Power clamps operated by Vario-X are more dependable and less error-prone in operation than conventional pneumatic systems. The platform can provide information about parameters such as position, torque and speed at all times.*

Image: *Murrelektronik GmbH*

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