Press release

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End-to-end tools and services for digital engineering

Lenze's focus at this year's Hanover fair is all about the new opportunities in engineering and construction that are opening up in mechanical engineering as a result of the digital transformation

The digital transformation is fed by our increasing capacity to link available data more closely – not only in ongoing production but even during machine and system development. Lenze's presentation will focus on the data that Lenze makes available to its partners and on how it can be integrated and used to maximum effect. This is important because mechanical engineers will only be able to enter the era of digital engineering successfully if they have the right tools, services and methods.

The switch from drawing designs on paper to using electronic tools was an important milestone on the way to digitalization. The digital transformation now represents the next evolutionary step where data collected from sensors and drives is fed into the development of the module, from there into the design of machines and systems, and where it can later also be used during operation as well as for maintenance, services and retrofitting. One of the promising concepts for these kinds of lifelong data flows is the Asset Administration Shell (AAS). AAS is already a core component of the reference architecture model Industry 4.0 (RAMI 4.0).

No Industry 4.0 without AAS

It can also be considered a container in which the relevant data for each asset is collected: the description of the mechanical-electrical properties, documentation and certificates, software, behavioural descriptions and much

more. This information pool serves as the basis for Industry 4.0 applications and must therefore follow certain standards to meet universal requirements.

Although the concept was adopted by the Industry 4.0 platform more than three years ago, a number of issues remain unresolved. But the gaps that stand in the way of end-to-end data usage are slowly closing. Lenze is also making a contribution: with its work in standardization bodies, white papers and experts who support customers with digital engineering – and with tools and apps that are already allowing businesses to apply the AAS concept right now.

System solution planning

One of Lenze's key tools for digital engineering is the EASY System Designer. In the near future, this innovative, web-based planning tool will support users with the complete planning of machine solutions, consisting of automation and drive components as well as software. Based on extensive, integrated automation know-how, the tool checks the feasibility of the system solution that has been developed and documents everything necessary for those involved in the engineering process. This saves valuable planning time, shortens the decision-making process and reduces the risks associated with the project. Consistency creates added value: the solution can be made available for further engineering tasks. The complete solution can be transferred immediately to the EASY Product Finder shopping cart to accelerate the quotation process.

In the next step, the planned system solution can be used as the basis for developing a corresponding PLC program. The programmer will have access to the information on the machine's structure, selected hardware components and software modules, as well as the application parameters and other relevant project data, in their engineering environment. This means that they can finalise the PLC program and get the machine up and running much more quickly. During this process, the Asset Administration Shell is populated with data: it is processed with all the tools that know and understand the structure of the AAS.

Virtual and real world combined

Lenze is already demonstrating that the AAS is not just a theoretical concept, but can also provide real support in industrial automation with its live operation of a picker cell at their stand. Just like RAMI 4.0, the AAS not only makes available the type information, but also real instance data such as the serial number and time of manufacture, as well as live data. The standardisation and structuring of the data, as well as the central linkage as a "single point of truth", through which all the necessary information is available, are advantageous for both OEMs and plant operators. This is because any data transfer problem carries the risk that information is transmitted incorrectly, is out-of-date or is simply non-existent.

Conversely, comprehensive data availability can provide in-depth information without the need to install additional measuring points. One of Lenze's showcases also demonstrates how effective condition monitoring can be achieved using component data, coupled with application know-how and suitable analysis tools.

Conclusion – Closely aligned with the market

Lenze presents tools, prototypes, and concept studies for digital engineering in order to show its partners what R&D departments could be focusing on in the future. Customers are also encouraged to provide feedback and formulate their requirements. This allows tools to be developed that are closely aligned with the needs of the market. Lenze is thereby showing itself as a provider of Industry 4.0 and IIoT solutions and is assuming a leading role in the digitalization of industry.

About Lenze
Lenze is a leading automation company for the machine-building industry and a specialist in Motion Centric Automation. As a systems supplier with solutions competence, Lenze works for and with its customers to create high-quality mechatronic products and packages, powerful systems consisting of hardware and software for machine automation, as well as digitalisation services in areas such as big data management, cloud or mobile solutions, and software for the Internet of Things (IoT).

Lenze employs 3,969 employees worldwide and is represented in more than 60 countries. Lenze's growth strategy will see the company continuing to invest strongly in the areas relating to Industry 4.0 in the coming years – with the aim of increasing sales revenue and profitability.

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