Press information

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The future of production is Plug & Produce

At the SPS IPC Drives, Lenze demonstrates how existing and future standards can provide more flexibility and openness in production

A new job, a new product, a new format: A change is planned for Infeed and Pick&Place in the production line. Packaging and Paletizer will remain untouched, but the Outfeed module must also be changed. Not only does this sound complicated, it also requires a lot of time and effort – still. The Plug & Produce concept could soon mean that the production line is quickly back in operation without excessive manual effort being required for configuration and programming. Manufacturer-independent standardised interfaces for control, formula and product data already exist. With concepts such as the administration shell and machine skills, Lenze is showing us how the future could look.

Stronger product customisation means even smaller batch sizes – and therefore more frequent production line retooling. And it's not just the mechatronic modules within a machine or system that must be swapped out. Programming of the control system, integration into the HMI, diagnostics and commissioning are other necessary worksteps before production can get started. This means a significant amount of expenses in terms of time and personnel for the end user. However, the OEM also needs to invest a lot. For example, implementing the necessary connection options, preparing different files or data formats and coordinating everything with the suppliers of other modules.

At the SPS IPC Drives trade show in Nuremberg, machine automation specialist Lenze shows that it doesn't have to be this way. The showcase simulates the packaging of various products with different modules within the production line. Retooling of the production line follows the "Plug & Produce" concept – simply plug in and get started. The secret lies in communication: open, manufacturer-independent standards allow the various modules involved to automatically configure the production line and exchange data with one another, including full-fledged interaction during production. This means that the production line no longer needs to be programmed.

Utilise existing standards

This standardised communication is built upon the OPC UA and its PackML companion specification. Lenze was one of the first companies to make use of the administration shell to provide data descriptions of the machine "skills". Using this data, the modules can automatically link together and organise the interactions in the production process. The Plug & Produce showcase is one example of just how powerful Lenze's hardware and software automation platform is with regard to openness, scalability, modularity and networking.

The manufacturer's aim is to create manufacturer-independent standards for this application. They are therefore looking for supporters in industry, among OEMs and are engaging with the standards committees of professional associations. And the people in Hamelin know that this is the only way to achieve their goal of real Plug & Produce. Openness in the selection of machine suppliers, in the adaptation of production lines and when changing products also means openness for the automation platform.

Benefits for OEMs...

Mechanical engineering benefits immensely from the Plug & Produce concept. This is because uniform interfaces and standards simplify the modularisation of machines and systems. At the same time, the intellectual property of the OEM is protected as no specialist expertise needs to be provided to third parties in order to ensure seamless communication and networking. The integration and programming effort is reduced and the integration of visualisation systems is simplified – thus reducing possible error sources and bringing about more room for innovation. Improved functionality with a shorter time-to-market and efficient use of personnel also strengthens competitiveness.

...and end users

For the end user, Plug & Produce pays off right away when designing a new production line: higher flexibility and adaptability, more openness when selecting machines and suppliers and easier reusability of machine modules. Production can be adapted more quickly to changes in the market and customer requirements, while still requiring minimal effort for integration, i.e. staff deployment. Continuous communication further allows diagnostics and alert management to be more readily standardised. Plug & Produce allows for more frequent product changes during ongoing production due to simpler, faster retooling and high plant availability.

Conclusion

Current standards already allow large parts of the Plug & Produce concept to be implemented today. The task is now to fill in the remaining gaps as quickly as possible in order to start fully benefitting from the advantages this concept has to offer. As a manufacturer with comprehensive domain knowledge and a wide range of hardware and software for machine automation, Lenze is committed to implementing open standards to ensure that all participants in the market can benefit from the best possible flexibility for development and machine and system operations. To achieve this goal, Lenze is seeking dialogue with customers, partners and professional associations.

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