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SecurePLUGandWORK

a research and development project
within the Framework Concept
"Research for Tomorrow's Production"

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WIBU
SYSTEMS

KESSLER

PROJECT FUNDING

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SECURE
PLUG AND WORK

www.secureplugandwork.de

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ACTUAL SITATION

Industry 4.0 envisages intelligent plant components, machines, plants, and IT systems connected to each other. They know relevant ‚partners' and their skills and posses an interface similar to USB.

In case of (re-)commisioning, (re-)engineering, (re-)design, and startup of components, machines, and plants, all partners are able to react to changes like a new production situation.

Changes affect embedded software of field devices, program code of controllers, or superordinated IT systems e.g. MES

MOTIVATION

Changes often result in manual effort and are time- and cost-intensive, and error-prone. In the context of Industrie 4.0, these changes shall be effected in a (semi-)automatic way, by means of an interface for plants and production components similar to the USB interface in the PC world. However, the situation within production is much more complex. All changes shall occur »secure«.

SecurePLUGandWORK considers application scenarios on different hierarchy and complexity levels:

Use Case Integration Component-Machine
(e.g. ball screw in machine tool)

- Machine tool
- Main spindle
- Multi-spindle head
- Ball screw

Use Case Integration Machine-Plant
(e.g. modules in industrial cleaning system)

- Plant
- Cleaning system
- Gripping system
- Tool magazine

GOAL

The project realizes Plug-and-work mechanism with integrated security technology based on industrial standards. This results in faster engineering and reduced ramp-up time of components, machines, plants, and IT systems.

The SecurePLUGandWORK architecture realizes the secure Plug-and-work functionality by software components for the change management based on OPC UA and AutomationML.

SecurePLUGandWORK only allows authorized partners (components, machines, and IT systems) to link into the production system and encrypts communication, if necessary.

Furthermore SecurePLUGandWORK equips non-communicative plant components with Industrie 4.0 characteristics by the hardware SecurePLUGandWORK-adapter.