Success Story
Factory Automation

Kontron AIS GmbH

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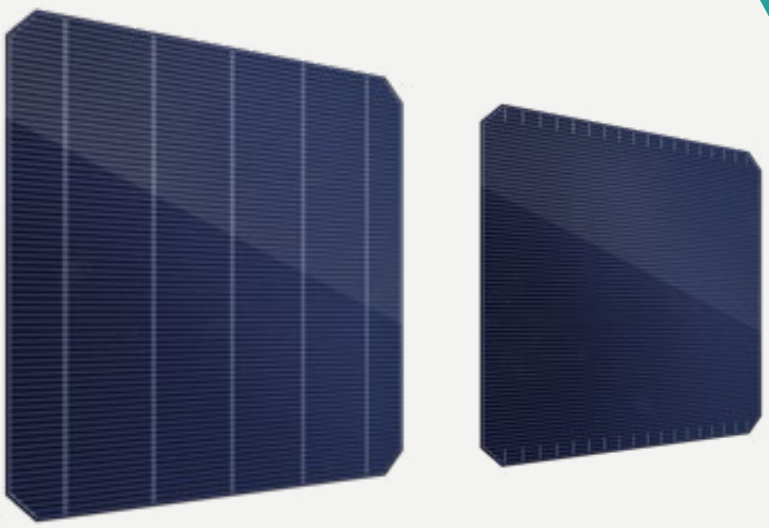
The Power of IoT

FabEagle®MES for Heterojunction (HJT) PV Module Production



"Virtual tracking of solar cells, product quality assurance and total control over production process."

Vitaliy Litvinov,
Head of the IS Department

XEBEA
ГРУППА КОМПАНИЙ

FabEagle®MES

Hevel Group
Novocheboksarsk, Russia

Project:
Upgrade of a thin-film fab to HJT

Platform:
FabEagle®MES, SECS/GEM and PV02 interfaces, proprietary interfaces (DB, XML-files)

Kontron AIS services:
Requirements engineering, integration consulting, integration, training, documentation, project management

Challenge

- Full process and production visibility for new HJT technology
- Fast ramp-up to reach efficiency targets
- Introduction of sophisticated production reporting

Solution

- Production equipment purchased without unified interfaces
- Virtual single wafer tracking through whole cell production
- Tight schedule
- Commission MES while already at production ramp-up stage

Result

- Use of FabEagle®MES photovoltaic cell standard function with little customization
- Development of individual interface drivers as needed for each equipment piece
- Fast initial setup; adjustments later without effect on production

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Hevel Group has completed the upgrade of its thin-film Fab in Novocheboksarsk and converted it to heterojunction technology (HJT). The production capacity has been increased from 97,5 MW to 160 MW and later to 260 MW.

The goal of the project was to install the FabEagle®MES in the solar cells production area of the upgraded production line to provide visibility and transparency on the production process and a solid basis for a detailed reporting.

Implementation in record time

The decision to install the FabEagle®MES with its unique features dedicated to support photovoltaic productions especially the single wafer tracking capability was made while the production equipment was already ramping up. This situation called for a quick installation in order to gather relevant quality and process data and adjust the high-tech tools to reach the expected efficiency target. The biggest challenge was to integrate a mix of already existing (for 10 years) tools and new high-throughput equipment with different interface technologies.

Hevel and Kontron AIS decided to focus on the integration work first, shifting the customization of user interfaces and reports to a later phase of the project. This dedicated focus, combined with the proven FabEagle®MES product and an efficient collaboration between Hevel, Kontron AIS and the tool vendors ensured that the challenging timeline could be met. Since then, data collection and virtual material tracking has been stable and reliable.

Delivered functions

The FabEagle®MES monitors the produced quantity and collects material and process related data from the production equipment automatically. A selection of manually acquired data is added to the system on a regular basis. All materials are virtually tracked through the production line, allowing for data correlations over several process steps and enabling the engineers to recognize process dependencies. Material loss and failure reasons are tracked with sophisticated error reports. Typical defects can be identified and eliminated much faster, resulting in increased production yields.

With all these features, FabEagle®MES ensures good process quality and high product quality. It also supports the engineers in their efforts for further process improvements.

Perspective

An extension of the FabEagle®MES for another cell production line is ongoing in order to provide the same level of production monitoring and transparency for the added equipment.

About Hevel Group

The Hevel Group was founded in 2009 and is the largest integrated solar energy company in Russia. Its key activities are focused on high-tech manufacturing of solar modules, construction and operation of solar power plants and research in the field of solar energy.

For more information please visit: **www.hevelsolar.com**

About Kontron AIS GmbH

We set the benchmark in industrial software – for more than 30 years and with an experienced team of over 200 employees. Our proven software products and customized digitalization solutions enable machine and equipment builders as well as factory operators to break new ground in automation and secure long-term competitive advantages. Together with our customers we implement worldwide cross-industry, intelligent digitalization strategies and solutions for the smart manufacturing of tomorrow.

As a subsidiary of the Kontron AG, we offer integrated, end-to-end IoT concepts consisting of hardware and software as well as worldwide project management, service, and support thanks to a global network.

For more information please visit: **www.kontron-ais.com**