

Worldwide Networked Dosing Systems

Evonik offers customers in the field of animal nutrition fully automated dosing systems for the precise control of amino acid additives. Together with Evonik staff, emlix has developed the software system for the control computers, which will be maintained remotely.

The system is operated using a Qt-based application via the control computer in the dosing unit, through which the condition of the equipment can be visualized. Consumption and operating data are also determined.

In the first phase a maintainable embedded-Linux-based software platform was put together using the software management and build system e2factory. On this basis, the programmable logic controller (PLC) as well as the sensors and actuators of the unit were integrated using various serial interfaces and Ethernet.



*Evonik AMINOSys®
big-bag dosing plant for
three amino acids*

With the help of a Qt-based application, functions of the equipment were made easily controllable for the operator. A mechanism for the selective updating of the operating system and application was integrated using procedures for secure authentication and authorization.

To achieve this, the files are encrypted, signed and transferred to the system power-fail-safe via USB stick. The recognition of authorized updates takes place automatically.

Using the same process in the opposite direction, log, operating and configuration data for the plant can be compiled with password protection for later use, thereby simplifying maintenance and error analysis for the service technicians.

Vertical Integration into the Company's IT

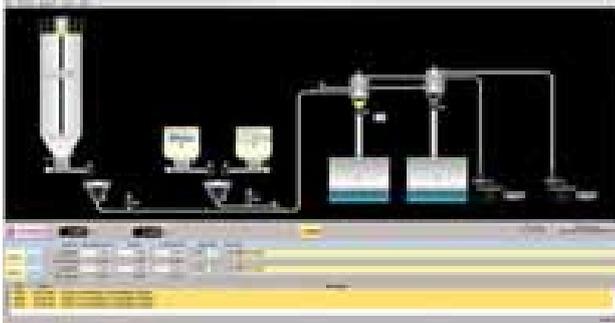
In a second phase the update and maintenance process outlined above was realized for long-distance connections.

To guarantee secure network integration, the functionality of the control computer was extended to include mechanisms for initiating timer-controlled VPN connections, sophisticated key management as well as a firewall and functions for operating and parameterization.

In order to facilitate connection to systems in remote areas or with poor signal reception a very robust and failure-tolerant data transfer method was implemented, which works even with minimal bandwidth and with network interruptions, and includes an integrity check of the data transferred.

emlix's work also included the implementation of the server-side infrastructure for multi-device management and data integration across all systems.

The interfaces of the business and embedded IT as well as the security infrastructure in the control computer were agreed with Evonik's IT specialists: via an Ethernet/GPRS Gateway, the customer has access to encrypted and signed software updates, which in some cases provide the dosing unit with new performance characteristics. Furthermore, trouble-shooting access via an encrypted data connection is possible for servicing after consultation and agreement with the customer.



Real-time visualization and control of a dosing plant, realized using Qt.

Support for Central Business Processes

The operating data of the systems is encrypted and transferred to an Evonik server. From there it is pre-processed and then taken over by a CRM system, where it is available for authorized users from the Sales and Marketing Department.

Evonik uses the consumption information contained in the log data for market and consumption analyses. For customers, Evonik puts together suggestions for preventative maintenance on the basis of the log data. This helps to reduce the down-time of the plant. The update concept ensures that process control is always up-to-date.

This solution is already in operation in the first field-test installations with customers. The general roll-out is being planned.

Maintenance and Support for Connected Devices

emlix transfers system and security expertise, market knowledge and the results of international open source projects into the vertically networked products of its customers. In addition to the design of software platforms at device level, this includes the development of server-side software systems for the management of devices, software updates, key concepts and the transmission and aggregation of data from the on-site level.

We offer long-term support for our vertical integration solutions, thereby taking responsibility for the product life-cycle of our customers.

Precise Mixing of Dry Substances

In its business area Health & Nutrition, Evonik Industries AG produces and markets the four most important essential amino acids for advanced animal nutrition. In addition to the nutritional additives themselves, the company offers its customers in well over 100 countries a range of innovative systems – from amino acid analysis via recommendations for amino acid supplements in feed formulations right up to comprehensive concepts and services for quality control in animal feed production.

This includes fully automated amino acid dosing systems for use in feed mills. The systems were developed by Evonik and optimize amino acid dosing in the production processes of its customers. The latest generation of equipment makes use of a secure long-distance connection to a central Evonik server with CRM integration. Process data and software updates are sent and received via encrypted connections.

Further Information:

<http://feed-additives.evonik.com/product/feed-additives/en/Pages/default.aspx>

emlix GmbH

solutions @ emlix.com

<http://www.emlix.com>

Phone +49 (0) 551 / 30664-0

Fax +49 (0) 551 / 30664-11