

Production Monitoring and Control

Using NFC to be on the Pulse of the Production Line

With NFC-transponders by AEG ID, ASYS developed an innovative system to control and monitor production lines



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Efficient manufacturing that can be comfortably managed, and that leads to high availability of the whole machine system – that was the goal of machine building company ASYS when designing a new mobile system for the control and monitoring of whole production lines. Specifically, AEG ID developed NFC-Transponders, which are a key element of the solution “ASYPULSE”. At the same time, transponders must meet not only the high requirements of the design, but also application-specific and technological requirements.

Mobile control for an efficient fabrication

The ASYS Group develops and produces handling-, process-, and special purpose machines for the electronics and solar industries. Companies that make use of ASYS' machines are dependent on high plant availability, due to the fact that these machines produce at an extremely high rate. Sometimes, 20 process steps in one line are done in only 10 seconds. In the past, an employee was notified with optic and acoustic signals if a failure occurred or there was no more material being supplied. In order to react quickly so as to prevent a longer down time of the machinery, numerous employees had the task of permanently supervising all of the production steps. In the eyes of ASYS, this method had potential for optimizing. Therefore, the concept of developing a mobile assistance system for the control and monitoring of production lines via tablet was born. The system makes all relevant information of all modules in one line clearly and graphically available, so that production employees can quickly react to standstills and plan routine tasks proactively.

Industry 4.0 communication via NFC-transponder

In order to identify individual production modules quickly, easily, and above all reliably, ASYS equipped every ASYS Pulse production line module with an RFID transponder. Since tablets are used for the display and control of the production line, the usage of NFC-technology suggested itself.

The NFC-transponder applied directly to the module has multiple purposes: on one hand, necessary information such as machine type, serial number, software version and log files can be saved directly onto the module, therefore, the transponder takes the role of an electronic type plate. On the other



With NFC, the efficiency of complex production lines can be significantly increased.

hand, the transponder makes the identification by the employee possible. As soon as a transponder is identified by the tablet's reader, error and status messages can be sent to a pre-defined email address with only a few clicks. Regarding industry 4.0 concepts, a new communication between men and machine is formed via NFC and tablet.

Efficient manufacturing is made possible

Apart from the additional benefits of all machine module data being available directly at the production line, for example for maintenance and servicing processes, the focus of ASYS PULSE lies on increasing efficiency of the production lines. Without a mobile control and monitoring system, multiple signal systems are required to point error and status messages out to production employees. However, using ASYS PULSE, employees can work more flexibly and efficiently, and companies can save equipment at the production line. Before, various elements generating signals and touchscreens were needed for controlling, but now, using the mobile system, only the statutory start-stop and the emergency-stop button are required.



All data at a glance: The NFC transponders from AEG ID enable the fast and reliable identification of individual modules.

High-value NFC-transponders for high-end production lines

Apart from technological features, such as NFC-transponders having to have a comparatively high reading ranges of between five to ten centimeters and having to be applicable to metal, the requirements for NFC transponders for this application include the design and the selection of the surface material. These requirements had functional as well as non-functional reasons: on one hand, NFC-transponders should fit optically to the high-value machine modules from ASYS. The idea was that the label should have the shape of a button on a tablet to create a visual link to apps on mobile devices. Due to its raised superstructure, the 3D logo transponder protects the tablet because the contact to the metal or the edges

of the machine modules will be prevented even if employees touch the transponder with the tablet. Due to that fact that AEG ID develops and produces all transponders in-house, the customers are free in their choice of shape and graphical design of the NFC- or NFC-transponders. Therefore, with the NFC 3D logo transponder, all requirements of function and design can be met, even in the shortest time possible. Less than one week after the first consultations, AEG ID delivered test samples to ASYS, which were quickly approved and subsequent production began.

Flexible NFC-solution for the global use

The 3D logo transponders are not only available in HF and LF version, but also in with both technologies even in small batch sizes. The process's reliable reading range with a handheld reader is about five centimeters. AEG ID can produce transponders that are applicable to metal objects, as well as those that are applicable to non-metal objects. Therefore, 3D logo transponders are the base of solutions for usage in various manufacturing companies, such as the pharmaceutical or automotive industries. The ASYS-solution was brought to market in May 2014 and numerous customers of ASYS are already using it on their production sites. The flexibility of the solutions was additionally increased by the fact that machines from third-party manufactures can be integrated without problems.

About AEG ID

AEG ID, a leading global supplier of RFID technology, designs and manufactures a comprehensive portfolio of tags and readers for a broad range of markets and applications. AEG ID has vast experience in this industry as it has been developing and producing its RFID devices since 1989. AEG ID now has the capability to produce customized transponders and readers to meet the specifications of virtually any low, high, and ultrahigh frequency RFID project.

AEG ID targets three main market segments: animal identification, industry & logistics, and access control. By providing a range of transponders in various shapes and packaging materials (plastic and glass), as well as fixed and handheld readers, they can specifically cater for each market segment. Applications range from industrial automation, production control, keg

identification, waste handling and logistics, to access control, animal identification, sports timing, and event management.

AEG ID currently employs 110 people at its headquarters in Ulm, Germany and its production plant in Vrchlabi, Czech Republic. AEG ID has the capacity to produce 50 million transponders a year and operates worldwide through a network of regional and local sales & service partners.

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