Case Study

SAMSON AG Takes the Lead in Shop Floor Digitalization
Gaining Visibility & Improving Availability by up to 30%

Headquartered in Frankfurt, Germany, SAMSON AG is a global manufacturer of control valves, regulators and accessories for process control, with over 4,000 employees and more than €600M annual revenues. SAMSON AG examined various asset performance monitoring (APM) solutions with the goal of improving productivity and resolving bottlenecks in operations.

The company has around 100 critical production assets, spreads across 4 organizational units, at their Frankfurt site. The target assets are a mixed fleet of machines manufactured by multiple vendors and varying in age - some are brand new, while others were installed 16 years ago.

Limited production floor visibility with manual measurement

Prior to the introduction of the 3d Signals APM solution, the assets were monitored with a proprietary monitoring system that measured power to the main spindle of the CNC machine. This was being decommissioned because of a lack of internal resources. In addition, traditional tower lights and 24V controls were used, as well as handwritten logs and departmental whiteboards.

Based on monitoring data and personal assessment, SAMSON AG's management estimated OEE was far from the target value. It was clear that in order to improve, SAMSON AG needed a unified and consistent method of data collection and analysis.

Searching for the right solution

SAMSON AG were looking for an APM solution that would allow them to increase their OEE and:

+ Be compatible with all assets, regardless of age, type or vendor

+ Not require different user interfaces/dashboards for different machine brands

+ Not require invasive integration with machine's electronics that may cause voiding of the warranty

+ Not require high involvement of factory employees and long periods of downtime for installation, setup and onboarding

+ Not involve using complicated and asset-specific workloads to program PLC outputs in order to label machine status

+ Not connect to machine controls and potentially pose a cybersecurity threat to ongoing operations

"The 3d Signals solution improved machine productivity in some of the production floors by more than 30% within months. We share the comprehensive reports generated from the data on a daily basis with our shop floor staff, creating new transparency, trust and continuous operational improvement production company."

**Dr. Andreas Widl,
CEO, SAMSON AG**

3d Signals – the Most Attractive & Trustworthy Solution

SAMSON AG assessed the 3d Signals APM solution versus a common APM solution that uses 24V controls and tower lights. After an 8-week trial period, the 3d Signals patented, AI-powered solution was selected, and Samson AG became a design partner of 3d Signals.

The 3d Signals solution was selected based on:

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Ease/Speed of Installation	**Ease-of-use**	**Precision**	**Security & Warranty**
Non-invasive sensors were connected to machines without requiring PLC programming, employee involvement, or other customizations. The average installation time was ~45 minutes/machine.	Performance data is visualized in real-time on a cloud-based mobile-friendly software, for both executives and managers on the floor.	The add-on sensors were proven to be more accurate than traditional machine controls like the 24V Signals and the tower Lights.	Zero-integration meant no risk of manipulation, cyber-attack or warranty voiding on the machines.

Up to 30% Improved Productivity within Months

The 3d Signals edge device and sensors were installed in stages on more than 100 assets in the Frankfurt plant starting August 2018. As design partners, the Operation Managers of Samson AG helped define the needed dashboards and views. The customized reports support the varying needs of the different stakeholders. Machine availability, real-time status, and historic reports are being shared on the shop floor and the newfound transparency creates a company-wide commitment to goals and builds motivation to improve (figure 1).


Figure 1. Machine availability information shared with employees on the shop floor for enhanced transparency and continuous improvement

Using the 3d Signals solution, SAMSON AG now for the first time have automated and reliable visibility into the production floor, providing an accurate and real-time status of machine availability across their factories, and enabling improved processes by facilitating data-driven decision making.

The production managers were initially surprised by the low level of machine availability compared to their estimation before installation of the 3d Signals system. Visibility was than leveraged to improve availability of underperforming machines, and results were observed within a few weeks (figure 2).

Figure 2. A specific production asset (machine A) with low production capacity compared to another asset located on the same production floor (machine B), on the day of installation and 8 weeks after visualizing the differences. Actions taken by the floor manager resulted in sustainable, similar production for both assets.
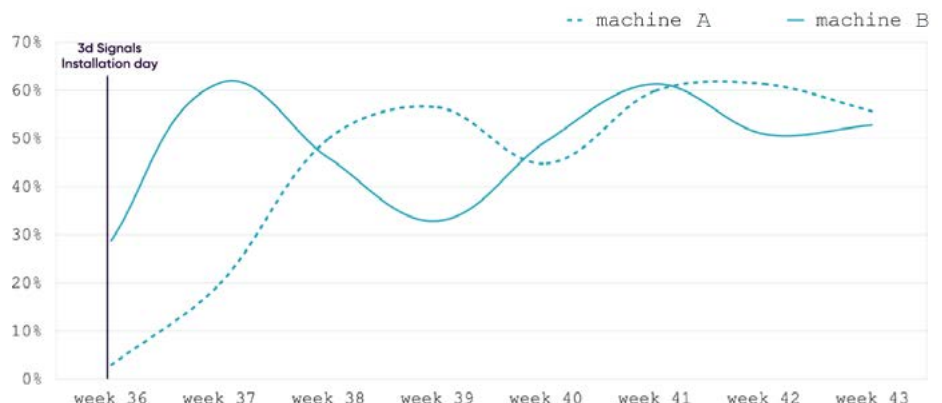
Looking Forward

Now connected, SAMSON AG is a proud factory of the future, reaping the fruits of Industry 4.0. With time, more and more machines in its various global sites will be digitalized and as more capabilities are added to the 3DSIgnals software, such as performance monitoring and ERP integration, further improvements are expected, helping SAMSON AG maintain its competitive edge.

3dSignals