

## Efficient operation of hydraulic power units

New automation concept for improving efficiency saves resources while increasing availability



### **Our customer:**

**A globally successful automotive manufacturer**

Based in Germany, the company is renowned for its quality and innovative technology. With a high variety of vehicle models, it is one of the world's leading car makers.

In recent years, the vehicle manufacturer has been driving electromobility forward with high investments in alternative drive technologies and appropriate production facilities.

**The challenge:**

Hydraulic power units are used in various areas of automotive production. They are powerful and versatile systems that ensure precise power transmission and control, fulfilling the high quality requirements of the automotive industry.



For example, they can operate presses to form, punch or assemble vehicle parts. Robots and other industrial machining and assembly systems are also driven or controlled hydraulically. The systems are even used for painting or quality control to position the body and perform load tests. Hydraulic power units can significantly enhance precision and efficiency in production, which in turn, minimises costs.

As our customer uses hydraulic power units in various areas of production, a number of systems with different components have been

put in place over time. Some models contained outdated technology and components that had already been discontinued.

Starting in 2021, our mission was to find a new solution and define a new standard for all plants. Going forward, it was to serve as a basis for all systems to achieve greater efficiency and cost savings. Another requirement was to ensure that the hydraulic power units would be self-contained and that direct control from a higher-level controller would be possible. At the same time, the safety of the systems had to be enhanced, e.g. using e-stops.

**The solution – why ifm?**

Together with ifm as a long-standing partner, the customer defined a new standard for all its plants in 2023 as part of a pilot project. The new concept will apply to all hydraulic power units, ensuring a lean and more efficient plant design with fewer components, thus saving costs. A modern wiring concept based on AL1102 IO-Link masters enables easy connection of all sensors, which communicate with the CPU via PROFINET. An LT3022 sensor with IO-Link capability simultaneously detects the level and the temperature of the hydraulic oil. In addition, an

SI5010 sensor continuously monitors the flow to increase safety, the reason being that there must be no flow if the hydraulic unit is not actuated. A PN7071 sensor is used to detect and indicate the system pressure. Thus, by optimising the system pressure, the movements of the unit can be controlled very precisely.

**Results:**

- Increased efficiency and productivity
- Increased safety
- Energy savings
- Reduced oil consumption
- Less maintenance time



**Reliable operation of the systems**



**Constant product availability**



**Energy, oil and maintenance savings**



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