

Focusing on Power Quality Can Reduce Downtime 20 Percent

Industry experts estimate the Total Downtime Cost (TDC) of failure in the automotive and machining plant to be quite high - varying from \$200K per hour to \$5MM per hour of production downtime. Companies in the automotive sector report an average of 6-8 costly disruptions per year. And industry experts estimate 30-70 percent of disruptions are caused by poor power quality. So, focusing on improving power quality, particularly in combination with scalable cloud-based IIOT solutions, can have a substantial economic impact in the automotive industry.

In fact, many experts estimate downtime can be reduced by 20 percent for those automotive manufacturers who choose to focus on power quality. (Source: Rockwell Automation).

In 2017, over 73 million cars and nearly 24 million commercial vehicles were produced worldwide, an increase of over 2.4 percent over the previous year. (Source: Statista). Yet most companies do not measure and monitor power quality in real time resulting in such impact - wasting opportunity to substantially impact the bottom line.

Poor power quality can result in product scrap, product rework, damage to machinery and tooling, quality concerns, bottlenecks, and production delays - all with substantial cost. Additionally, limited plant resources are often caught scrambling to react, analyze, and remedy a host of very complex problems without often knowing the root cause driving the failure or how to quickly fix.

Key applications and processes used in the automotive industry such as CNC machining, press, subassembly, electronics, welding, testing, ovens, painting, and robotics to name a few all require a reliable, consistent and low-cost energy source to maintain operational stability. Poor power quality experienced in any of these areas can have severe operational and financial impact.

What are some of the causes of poor power in the automotive industry? Let's just focus on one area - voltage sags. Voltage sags, if left without remedy, create havoc on many automotive processes. For example, tool breakage in the machining process might take 4-6 hours to repair. ***An event in the machining process costing \$5MM per hour of downtime taking 4 hours to fix might cost over \$20MM.***

Servo based equipment used to support robotics lose position as a result of voltage sags, and these same robots require manual homing, taking up to several hours to fix. Ovens impacted by voltage sags in the paint process must be purged after stopped, with potential large impact to quality, taking an average of 2-4 hours to fix. Repaint of an automobile can affect 3-5 vehicles and hours of manual repaint. And if drives fail in the paint process, downtime to repair failed drives might also include repair of the ventilation system. Pneumatic equipment lose pressure due to voltage sags, possibly causing torque issues and requiring 1-2 hours to fix.

Manufacturing is faced with reductions in technical staff and a shortage of people able to solve complex problems - spanning machines, processes, and experts needed across discipline. Often planned maintenance schedules are delayed to accommodate for production disruptions. It's imperative then for all parties - manufacturers, OEM technology suppliers, and smaller innovative players to work together. Delivering cloud-based real-time services managed by deeply tenured and technical teams provide a low cost, impactful solution addressing operational, HR and financial needs - delivering technical insights and results quickly.

For now, and what seems to be into the foreseeable future, focusing on power quality seems to be a long- term project worthy of focus, and is proving to be one of the most impactful use cases as we deploy the IIoT. The focus, technologies, and solutions are all here.

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