

Wireless communications in the paper industry

Like any other large-scale, materials and capital intensive process, paper manufacturing is all about production efficiency and product quality. And as with all other industrial situations, safety is paramount. Wireless communication has a big role to play in helping paper manufacturers respond quicker to changing circumstances so that plants run as smoothly, efficiently and, above all, safely as possible.

Quicker response cuts downtime, enhances quality and improves safety

In paper mills, the finished product can roll off the production line at 30 meters per second. Any breaks, hold-ups or shutdowns can make for significant losses. In a large paper mill, producing half a million tons of finished paper per year, the financial contribution of each hour of production is more than \$13,000 dollars. Each stoppage represents money off the bottom line and throws production and profitability off target.

Stoppages have many causes and include planned and unplanned shut-downs, web breaks, power outages, mechanical failure, contamination of raw materials, damage to machine clothing and excessive effluents. The trick is to identify causes and act quickly to prevent them through maintenance, monitoring and control procedures.

Good communication

Paper mills are getting larger and more automated while simultaneously reducing staff levels. Simply communicating with mobile employees on-site can be a challenge in itself. Wireless communication is an essential tool in addressing this need.

On the factory floor

Equipment comes from a range of suppliers and many are older-generation machines without the latest management interfaces. Ascom Smart Integration of existing systems with wireless communication solutions consolidates information and presents it to plant managers and engineers wherever they are.

This means an up-to-date, personalized view of key data, more time on the factory floor and quicker response. Test results from the latest paper sample are available immediately, without the need to visit a PC.

Always in control

With well-informed expert engineers out on the factory floor, problems are likely to be identified faster and put right in a controlled way. If an engineer 'feels' something is not right with a particular machine, he can check quality and performance data immediately on his handset, and make any adjustments straight away. If required, a controlled shut-down can be requested from the device, instead of using the 'emergency stop' button.

Emergency response

The risk of fire and other emergencies is ever-present in paper plants. Wireless communications can play a vital supporting role in ensuring that routines for dealing with emergency situations are executed quickly and accurately. Integration with machine monitoring and alarm systems means critical alarms can automatically trigger an alert to the appropriate person. The reason for an alarm is always clear and precise. Group calling functions enable emergency response teams to open a communications channel and talk to each other at the touch of a button. With people often working alone or hidden from others in paper mills, the 'man down' and positioning capabilities of wireless communications systems could be a life-saver.

Smoother, safer maintenance

By integrating monitoring and maintenance systems with wireless communications, maintenance teams can perform their work and check task lists in situ. For example, if the operator responsible receives a report of excess vibration in a particular machine, he can immediately inform the appropriate engineer of the details of the problem. In addition, as planned maintenance tasks are completed, confirmations can be sent back to the control room, so that the next task can be performed as quickly and safely as possible. For instance, an engineer can confirm that he has finished working on a particular section, and that the line is ready for start-up.

Making use of unplanned stops

Another benefit of having integrated wireless communications is that whenever un-planned stoppages do occur, they can quickly be turned into 'planned' ones. Using wireless communications, instructions can be sent out immediately to maintenance teams to add regular maintenance routines to the restart operations. Through smart integration of wireless communications, paper mill operators will benefit from quicker response to changing conditions, reduced downtime, smoother operations, consistent product quality and enhanced safety. Even with small efficiency gains in a plant that produces a thousand tons of paper or more every single day, potentially millions of dollars could be added to the bottom line.