CC-Link In Action

OPEN NETWORKS

Cigar Smokers Benefit From Open Communication

A CC-Link communications system links inverters controlling the speed of the key conveyors in a cigar factory, ensuring quality is never jeopardised even in the big pre-Christmas rush.

Cigars have a finite shelf life, so production has to be demand responsive and be able to respond effectively to sudden seasonal fluctuations. Thus the processing plant has to be able to vary its throughput over a wide range whilst maintaining product quality for this luxury purchase.

The key process in cigar manufacturing involves breaking down bales of compacted tobacco then working it up into expanded tobacco, so that the final cigars draw smoothly.

The tobacco is then fed as loose material via conveyors into the Conditioning Cylinder - this is similar to a huge washing machine where water and steam are added to the tobacco to make it pliable. From here, the leaves are transported via a vibrating conveyor belt to loosen them and are sucked up by a vacuum into a section where the tobacco's moisture content and other parameters are checked.

Tobacco which passes this quality check is then transported by a series of conveyor bands to a bank of holding silos, ready for production.

When the tobacco is needed it is sent to two expanded filler treatment areas via more conveyor belts. The expanded filler plant treats the tobacco to achieve the correct texture for production.

The tobacco then enters an airlock where a vacuum is applied to remove moisture from the leaves. It is screw fed through the airlock and Pentane gas is added to make the tobacco leaves expand to four times their normal size, giving a much better smoking experience.

After the Pentane is added the tobacco is packed into boxes of 20kg by a network of conveyor belts and worm screws and is sent to the next stage of the complex tobacco treatment process.

A CC-Link network connects the 20 Inverters that control the conveyors to the PLC network that forms the plant's control system. This high-speed fieldbus network allows the inverters' speeds to be constantly checked and adjusted to match the rest of the process speed on a real-time basis.

The CC-Link network also enables the inverters' alarm functioning to be monitored, with resetting of any problems co-ordinated from a central room maintenance SCADA system.