

Wireless Solution Deploys on Rotating Turret to Gauge Unwinding Roll Diameter

Customer

Industry – Assembly & Manufacturing

Company – Evergreen Packaging manufactures a range of paperboard products, including gable top packaging designed to keep food and beverages fresh.

Background – Rolls of unfinished paperboard are unwound to allow for the application of a thin layer of laminate. To provide a continuous feed of material, a new roll is spliced onto the expiring roll as it is unwound.

Issue – Operators had to monitor the unwinding of each roll and initiate every step in the flying splice process. Typically, four or five splices were missed per line, per day. For each missed splice, the machine had to be rethreaded, resulting in up to an hour of production downtime and costing roughly \$1000.

Goal – Automate flying splice process

Requirement – Continuous calculation of each roll's diameter as it is unwound

Challenges – Turret rotation and wiring limitations complicate sensor installation

Solution

A counter ring with 75 holes around its circumference was fitted onto the machine's chuck. Installed on the machine's turret is a magnetic pickup connected to a Sure Cross® DX80 FlexPower® Node with counter I/O powered by a Sure Cross DX81H FlexPower Battery Supply Module.

Count information is transmitted by the Node to a Sure Cross DX80 Gateway connected to a PLC. Using this information, the PLC calculates roll diameter. Setpoints programed into the PLC trigger each step in the splice process.

Why Banner?

Wireless Operation – This system combines a robust 900 MHz wireless connection between the Node and the Gateway with an independent Power Supply Module mounted on the turret, allowing the machine to operate freely.

Customer Benefits

Cost Savings – Splices missed due to timing errors were eliminated, saving the company roughly \$4000 a day on two lines and totaling over \$1.4 million annually.

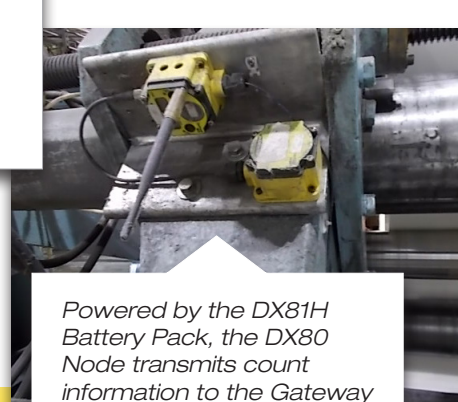
Reduced Waste – With splicing repeatability brought to within ± 0.125 ", the amount of material remaining on any roll is consistent and predictable and is typically less than had previously been possible.



Sure Cross®
DX80 Node
and DX81H
FlexPower®
Battery Supply
Module installed
on the turret



Magnetic
pickup and
counter ring
installed on
the chuck



The magnetic
pickup detects
holes in the
counter ring

"The wireless modules were so easy to work with, it's almost like they were tailor made for this application."

-Mike Walker, Control Systems
Engineer III, Evergreen Packaging

Powered by the DX81H
Battery Pack, the DX80
Node transmits count
information to the Gateway

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