FLUID COMPONENTS INTERNATIONAL LLC

FCI FS10i
Flow Monitor

# Monitoring Compressed Air in Packaging Machinery Lowers Operating Costs, Improves Performance

*Application Note Case Study ANCS022*

Packaging machinery and equipment frequently use compressed air to perform embedded processes. Manufacturers and users of these machines recognize that compressed air production is a significant contributor to equipment's operating costs and that excessive air production leads to wasted energy and added cost. Proper measurement of the compressed air flow can provide information to the equipment's control system to optimize air flow and reduce operating costs.

## Problem

A world leading supplier of high-technology machinery has an extensive range of world-class machines available for complete, end-to-end, high-speed production and packaging of cigarettes. A major design goal for this company is to lower the operating costs of their machines. Compressed air creation is a major component and expense in operation of these machines. The company recognized that if they can better measure and control the air flow within the equipment, it would directly contribute toward their goal of lowering the operational energy costs of its equipment. The company identified its machines with the highest demand for compressed air and sought out an optimal flow meter which could be added into the machines' design.

## Flow Conditions

- Media: Compressed air
- Line Size (pipe I.D.): 2.5″ to 6″ [63 mm or 152 mm]
- Air Flow Range: 0.75 ft/sec to 75 ft/sec [0,23 m/sec to 23 m/sec] with ±2% accuracy
- Process Temperature: Ambient
- Other: Mild vibration, limited space, M12 wiring-up/cable, adjustable insertion depth

## Solution

Factory calibrated FCI Model FS10i is specified and installed on five (5) different machines to directly measure the mass air flow. The FS10i 4-20 mA output signal is fed into a PLC controlling the machine's operation and interconnect to a communications network and internet. This machinery manufacturer also supplies a remote monitoring application accessible via wireless pad type device which permits easy monitoring of all connected meters throughout the facility. Real time energy savings may now be realized by monitoring abnormal usage, leaks and machine efficiency.

**FCI Model FS10i** *Other suitable product selections include ST50 and ST51; ST75 if line size is 2″ [DN50] or smaller*

## Benefits

- Adjustable depth, insertion probe saves inventory cost by fitting multiple pipe sizes
- Standard M12 cable connection reduced wiring costs
- Small, compact size and direct mass flow measuring saved sensor costs and space
- Linearized, calibration matched 4-20 mA output directly compatible with PLC and network
- Wide 100:1 turndown reduced inventory costs by working on multiple machines