

Technical News Bulletin

June 18, 2008

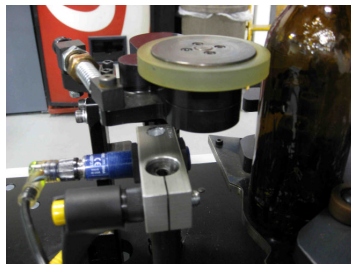


Out of Round Detection for CD, CIM & TIM

This TNB introduces our new Out of Round Detection Upgrade Kits for CD, CIM & TIM products, which can be retrofitted in the field.

Out of Round Detection Concept

- Ultra Sonic Sensors
 - 2 sensors stacked vertically used to detect deviations in container shape as they rotate
 - Photos below show a single sensor setup as proof of concept
 - Prototype for field trial would have two sensors for full coverage of label panel



- Ultra Sonic Sensor
 - Sensing Range (Programmable)
 - 1" – 10" away from sensor (1.5" on prototype)
 - Set based on desired sidewall coverage range
 - Acceptance Range (Programmable)
 - .125" on prototype
 - Can be set to whatever range is acceptable for OOR
 - Window edge accuracy = +/- .027"
 - Sonic Cone Angle
 - 10° @ 2.0 inches
 - Maximum Plane-Reflective Surface Angle
 - +/- 10°

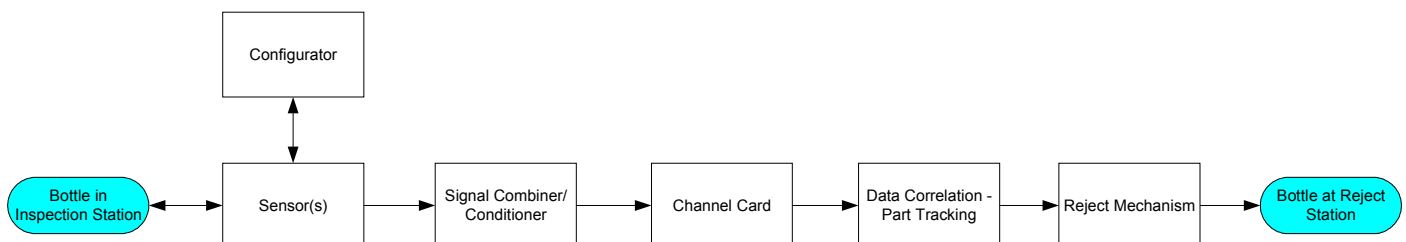
- Vertical Sidewall Coverage
 - Sensors 4” from bottle surface provides a sonic cone of 2” in diameter
 - Acceptance window for OOR is a function of sonic cone size, distance of sensor from bottle, OOR Specification and 10° reflective window
 - Typical A-B Budweiser bottle has a 4” label panel
 - Two sensors stacked vertically provide 4” of sidewall coverage
 - Keep cone away from edges to prevent false rejects
 - OOR defects tend to cover wide areas
 - OOR near bottom or top of label panel will tend to extend into coverage area – reducing the required sonic cone coverage area

- Horizontal Sidewall Coverage
 - Coverage window decreases due to curvature of reflective surface
 - Due to +/- 10° max reflective angle, diameter of area reflected back to sensor = .396”
- Total coverage window
 - 2” high x .396” wide

- Ultra Sonic Sensors
 - Can be programmed to detect objects within a very tight window
 - Acceptance range is programmed into the sensor
 - Sensors can be pre-programmed from supplier or can be programmed individually with a “configurator”
 - 600 Series sensors (Model SC650A-B00)
 - Very sensitive, especially for the range of detection we need
 - Temperature compensating
 - Two sensors can cover entire side panel of bottle
 - Supplier is looking into getting sensors in different frequency ranges
 - Eliminate possibility of crosstalk when two sensors are used in close proximity to each other, such as in our application

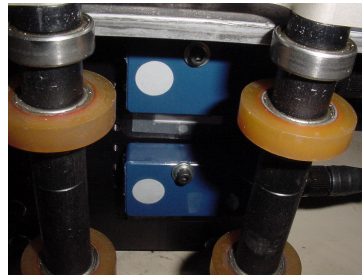


● Information/Process flow for OOR detection system

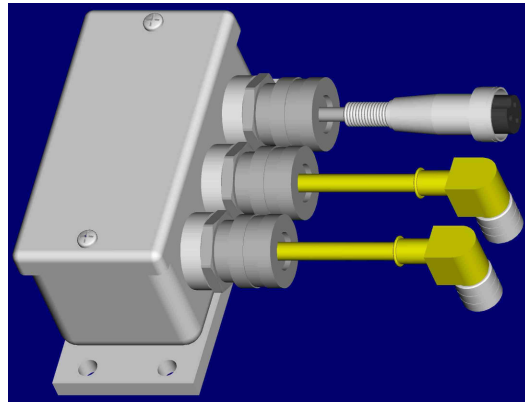


Product Mounting Configurations

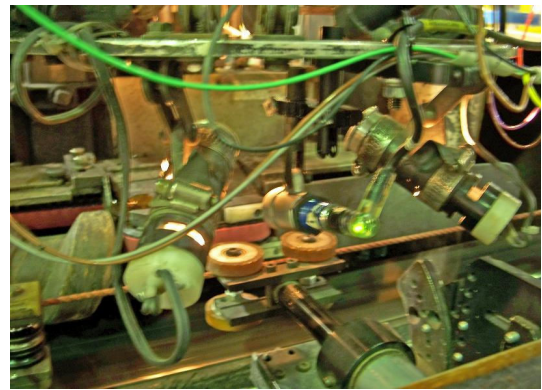
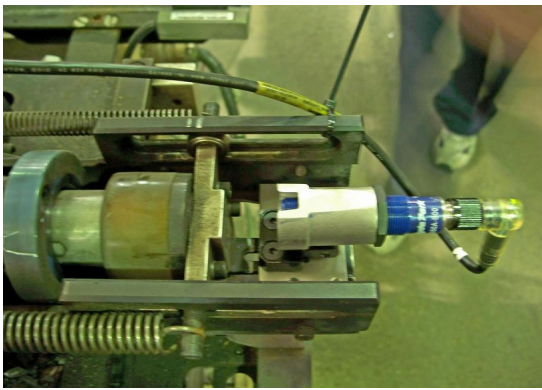
- TIM Mounting Configuration
 - Flat pack sensors mounted on a plate
 - Space considerations on the TIM dictated we use flat packs versus cylinder shaped sensors
 - Two sensors stacked vertically to cover label panel on typical beer bottles
 - Sensors look between uprights of roller holders at side of bottle in the center check station



- Standard 16 MHz Check channel card is slightly modified and used for input to the Host
 - New printing on faceplate of channel card to prevent confusion with standard Check cards (Photo shows Prototype)
- Signals for up to 4 sensors are combined (OR-ed) for input into a single channel card
 - Sensor Combiner Box part of the standard OOR kit



- CD/CIM Mounting Configuration
 - Single barrel sensor looks at clamp wheel rod for movement during inspection window
 - Clamp wheel rod will only move out of range when the surface of bottle is OOR
 - Dual Clamp wheels are recommended for maximum coverage
 - Dented Shoulder option same as with TIM
 - Barrel sensor mounts on check ring



Product Configurations - TIM

- Base kit for TIM - 26297A
 - Two flat pack sensors and cables
 - Signal combiner box
 - OOR channel card
 - Hardware
 - Positioning Block
- Base kit for TIM w/o Channel Card – 26297A1
- Additional Label Panel Sensor kit for TIM - 26330A
 - Flat pack sensor and cable
 - Hardware
- Dented Shoulder Sensor kit for TIM - 26331A
 - Cylinder style sensor and cable
 - Mounting bracket, housing and hardware
- Configurator – 13470P (Min. Qty of 1 per plant is recommended)

Product Configurations – CD/CIM

- Base kit for CD/CIM - 26335A
 - OOR Sensor for CD Carriage
 - Signal combiner box
 - OOR channel card
 - Hardware
 - Positioning Block
- Base kit for CD/CIM w/o Channel Card – 26335A1
- Dented Shoulder Sensor kit for CD/CIM - 26331A
 - Cylinder style sensor and cable
 - Mounting bracket, housing and hardware
- Configurator – 13470P (Min. Qty of 1 per plant is recommended)