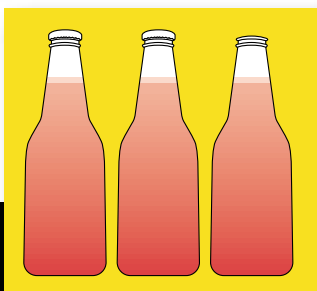
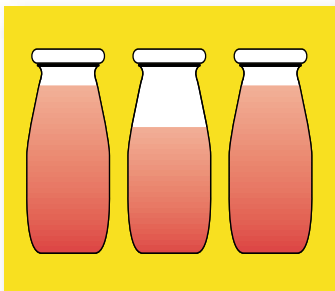


# TapTone 500

Non-contact, Leak Detection  
and Fill Level Monitoring System



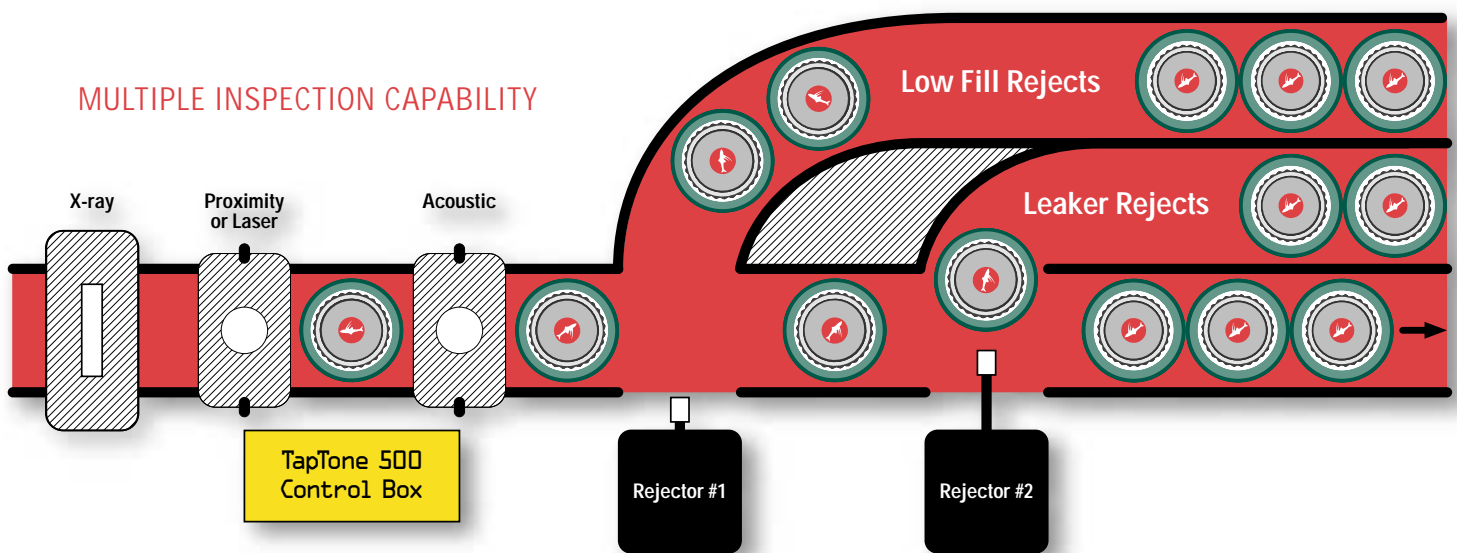
The TapTone 500 is an on-line inspection system for cans, bottles, and jars. The system is primarily designed to accurately detect fill level, vacuum, and pressure loss in rigid food, beer, and beverage containers. With the TapTone 500 system you can:

- Reject defective product before it reaches your customers
- Hold your material suppliers accountable for providing faulty materials
- Significantly reduce customer complaints
- Find faulty equipment before a catastrophic failure and down time occurs

The TapTone 500 system incorporates the latest technology in digital signal processing to manage inputs from up to three different sensors on a production line.

The measurement principle is based on x-ray for fill level, proximity or laser sensor for leak detection on cans, bottles and jars with lid deflection, and acoustic sensor for leak detect on cans, bottles, and jars with no deflection. Using these principles, the TapTone 500 system specializes in detecting and rejecting containers with:

- Low fill or over fill
- Low vacuum
- Low pressure
- Missing caps or lids
- Swelled cans or "button up" lids



## Acoustic Technology



**Acoustic Technology** is used to measure pressure or vacuum in containers that do not have a measurable lid deflection such as beer bottles, coffee bricks, and aerosol cans. The acoustic sensor works by applying a "tap" to the top of each container. The "tap" is produced by a large electromagnetic pulse, which excites the container lid. The lid vibrates at a natural resonant frequency "tone" based on internal pressure or vacuum. The resultant "tone" signal is sensed by a microphone, digitally sampled and stored in memory for processing. The Digital Signal Processor (DSP) produces a real-time signal spectrum and calculates the resultant frequency of the "tone" for that container lid. This frequency value is then compared to user set limits where containers with a frequency response outside these limits are rejected.

## Proximity Sensor



**Proximity Sensor** technology is used to measure pressure or vacuum in food cans, beverage cans, glass jars, and bottles with pop-up lids by measuring the lid deflection. The proximity sensor produces a continuous magnetic field that monitors the distance of the metal lid and produces a proportional analog voltage. The continuous proximity signal is digitally sampled to produce a merit value of the lid profile. The profile value is then compared to user set limits where containers with lid deflection outside these limits are rejected.

A menu driven keypad provides a simple to use operator interface. On-screen histograms are incorporated for real-time monitoring of the production line's efficiency. Additional capabilities of the TapTone 500 system include:

- Format your inspection criteria based on unique characteristics of the container profile
- AutoTRAK feature monitors and adjusts reject limits based on current production trends
- Percentage or Consecutive-based reject alarms prevent large amount of loss or wasted product
- TapTonePC software provides real-time production data collection, reporting and analysis

### Additional Inspections

Detecting missing labels, cocked or missing caps and missing tamper bands in real-time will prevent masses of defective product from being produced and eliminates wasted materials. Often, containers are manually inspected at the end of the production cycle. This requires the attention of individuals that could be working on more productive tasks. The TapTone system will automate these inspections, which allows you to increase your labor productivity, reduce customer complaints and save money.

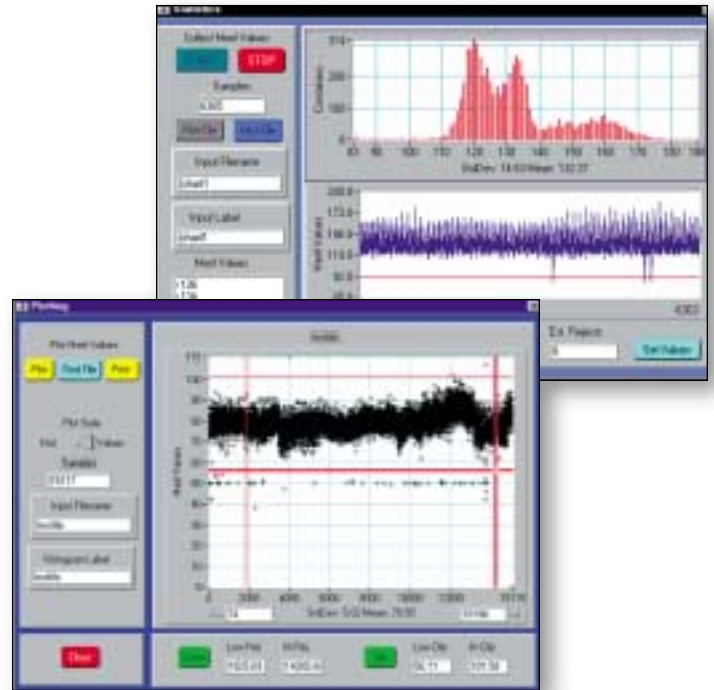
TapTone also detects:

- Missing Labels
- Cocked or missing caps and lids
- Missing tamper bands

### TapTone PC Data Collection

With TapTone PC software and TapTone inspection systems you can:

- Detect most system failures before they result in extensive damage to your product and down time to your production line
- Identify harmful trends in your production process
- Make real-time adjustments to your production lines
- Execute product change-overs from a remote location



### Laser Technology



**Laser Technology** is used to measure pressure or vacuum in plastic, rubber, foil, and paper containers by measuring the lid deflection. The laser sensor produces a pinpoint visible beam, then measures the reflected light. Similar to the proximity sensor the laser sensor signal is digitally sampled and the profile value is then compared to user set limits where

containers with lid deflection outside these limits are rejected.

### X-ray Technology



**X-ray Technology** is used to measure the product fill level in steel, aluminum, glass, plastic and paper containers. An x-ray tube energized at high voltage is used to produce a low energy x-ray beam. This x-ray beam is focused to look through the container in the expected fill level region. As the x-ray beam penetrates

the container, it is attenuated by the amount of product blocking the beam. The beam is monitored by a scintillation detector, which counts the x-ray intensity after it goes through the container. The level of intensity is proportionate to the fill level of the container. User set rejection limits defines the high or low fill threshold.



## Features:

- Non-contact Inspection
- Reliable High Speed Ram Rejection
- Inspection Speeds to 2,000 Containers Per Minute
- Clear LCD Graphic Display
- Menu Driven Keypad
- Memory for 10 Product Types
- Digital Signal Processing
- RS-232 and RS-485 Serial Interface Ports
- TapTone PC Software
- Shaft Encoder for Accurate Reject Timing
- Flash Memory for Easy Software Upgrades
- On-Screen Diagnostics for Troubleshooting
- Menus in Seven Languages
- NEMA 4X, IP65 Rated Enclosure
- Consecutive and Percent Reject Alarms
- Swing-away Transducer Assembly
- Programmable Merit Value Scaling
- Display Last Four Rejects
- Fault Diagnostics Feedback
- Two Independently Programmable Reject Outputs
- PLC Interface (Optional)
- Missing Label (Optional)
- Cocked or Missing Cap (Optional)
- Missing Tamper Bands (Optional)
- Second Rejector and Soft Rejectors (Optional)

## Technical Specifications

### GENERAL SPECIFICATIONS

<b>Electrical</b>	115–240 VAC ± 10%, 47–85 Hz, single phase, 250 watts
<b>Air</b>	30–150 psi., 6 cfm. (206.8 kPa–1034 kPa, 2832 cm <sup>3</sup> /sec)
<b>Operating Speed</b>	Up to 2000 containers/minute or belt speed of 525 feet /min (160 meters/min)
<b>Temperature</b>	32° to 122°F (0°–50° C)
<b>Humidity</b>	0–90%, non-condensing
<b>Altitude</b>	Sea level to 10,000 feet (3035 m)

### ENCLOSURE

<b>Dimensions</b>	16" high x 16" wide x 6" deep (41 cm x 41 cm x 15 cm).
<b>Construction</b>	Control enclosure with junction box
<b>Material</b>	Stainless steel, NEMA 4X, IP65 rated
<b>Wash Down</b>	High pressure water
<b>Mounting</b>	Angled pedestal stand, stainless steel
<b>Keypad</b>	Watertight touch pad (13 keys)
<b>LCD Display</b>	LCD 240 x 128 pixels, back-lit
<b>Communications</b>	RS-232/RS-485, 100 feet max/4000 feet max. (30 meters max/1,219 meters max)

### TRANSDUCER STAND

<b>Type</b>	Adjustable height with indicator, 9½" (241 mm) travel
<b>Construction</b>	ABS plastic & stainless steel
<b>Dimensions</b>	Height-6 feet, 21.75" (552.4 mm) base diameter

### SHAFT ENCODER

<b>Construction</b>	Hard anodized aluminum, NEMA 4, IP65
<b>Wash Down</b>	High-pressure water
<b>Cable Length</b>	25 ft. (7.62 m) standard

### OPTIONS

<b>PLC Interface Board</b>	AC or DC
<b>Input Module Choices</b>	Solid state, 3-30 VDC Solid state, 140 VAC Solid state, 280 VAC
<b>Output Module Choices</b>	Solid state, 60 VDC @ 3.5 amps, normally open Solid state, 140 VAC @ 3.5 amps, normally open Solid state, 280 VAC @ 3.5 amps, normally open

03/00. Specifications subject to change without notice.

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## Free Product Testing

TapTone offers a free product testing to assure that your product can be inspected with 100% accuracy before your purchase a TapTone system. Interested processors should send samples to TapTone for evaluations. Our application engineers will return a comprehensive report on testability of your product.

**TapTone**<sup>®</sup>  
PACKAGE INSPECTION

ISO 9001 Certified CE Compliant

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