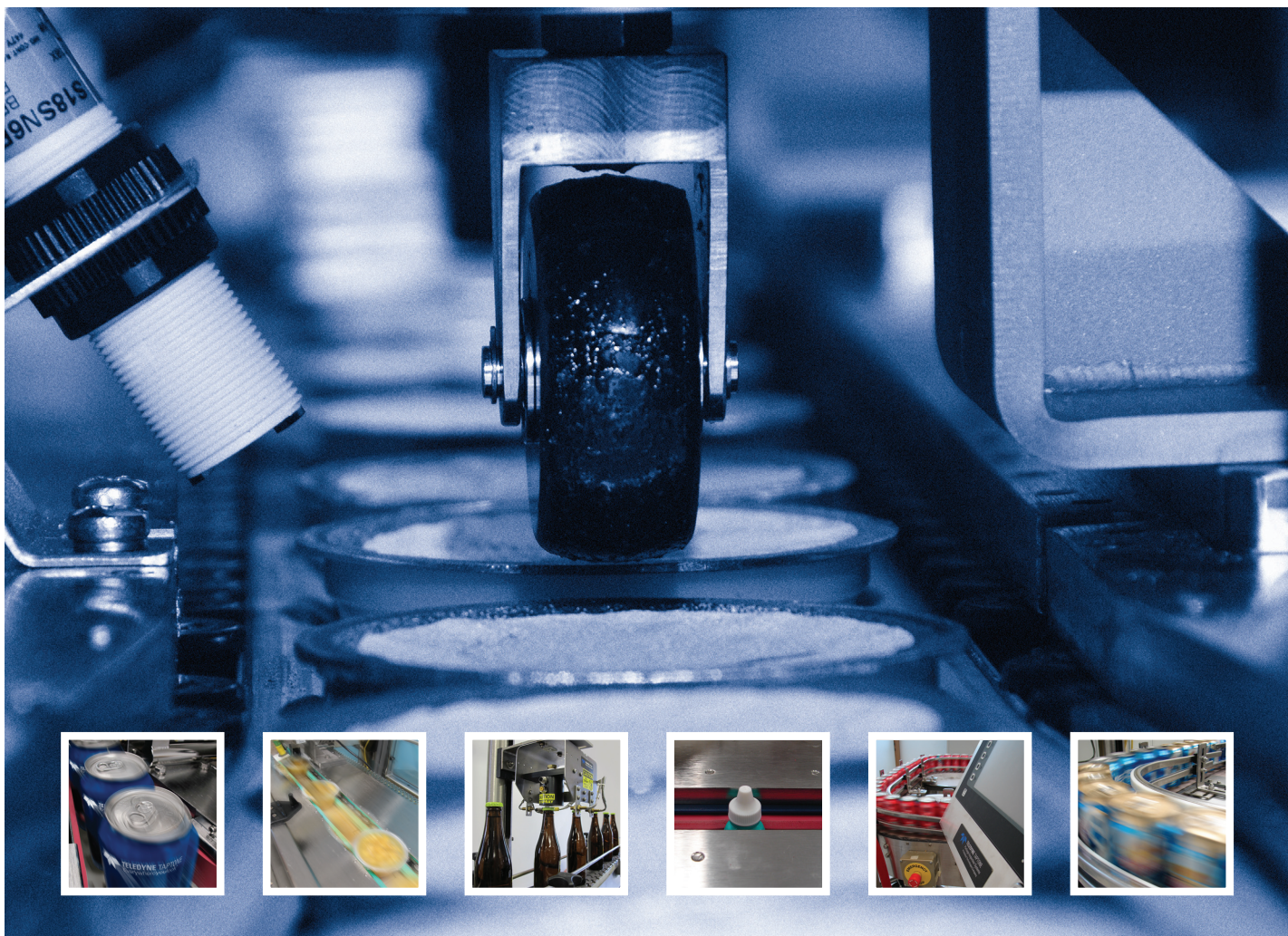


Teledyne TapTone Inspection Systems

# Product Overview



Innovations in  
Container Inspection

SPECIFICATIONS

**Acoustic Sensor**

For closures with no measurable deflection  
Acoustic technology is used to measure pressure or vacuum in containers with metal closures that do not have a measurable lid deflection. Can be configured with an optional proximity sensor for cocked crown detection. Used primarily on metal crowns and ROPP closures.



**Proximity Sensor**

For metal closures with deflection  
Proximity technology measures pressure or vacuum in containers with metal closures by measuring the lid deflection. Used primarily for canned products or metal button up lids. Also available as new Twin Proximity sensor for easy open pull tab cans.



TapTone Model Number  
Container Types  
Primary Inspection  
TDLC Sensor  
User Interface Options  
Sensor Mounting  
Sensor Construction  
Inspection Speed  
Line Space Requirement  
How It Works

|                        | A                               | P                               |
|------------------------|---------------------------------|---------------------------------|
| Container Types        | Glass<br>Metal                  | Glass<br>Metal<br>Plastic       |
| Primary Inspection     | Vacuum/Pressure                 | Vacuum/Pressure                 |
| TDLC Sensor            | N                               | N                               |
| User Interface Options | T550, PRO Series                | T550, PRO Series                |
| Sensor Mounting        | Floor/Conveyor                  | Floor/Conveyor                  |
| Sensor Construction    | Stainless Steel                 | Stainless Steel                 |
| Inspection Speed       | 1,500 Containers/Minute Maximum | 2,000 Containers/Minute Maximum |
| Line Space Requirement | 30.5 cm (12 in)                 | 30.5 cm (12 in)                 |

**Acoustic Technology ▲**

Acoustic technology is used to measure pressure or vacuum in containers with metal closures that do not have a measurable lid deflection. The sensor works by applying a "tap" to the top of each container lid using an electromagnetic pulse which excites the closure. The lid vibrates at a natural resonant frequency "tone" based on internal pressure or vacuum. The resultant "tone" signal is sensed by a microphone. The Digital Signal Processor (DSP) produces a real-time signal spectrum and calculates the resultant frequency of the "tone" for that lid. The frequency is then compared to user set limits. Containers with a frequency outside these limits are rejected.

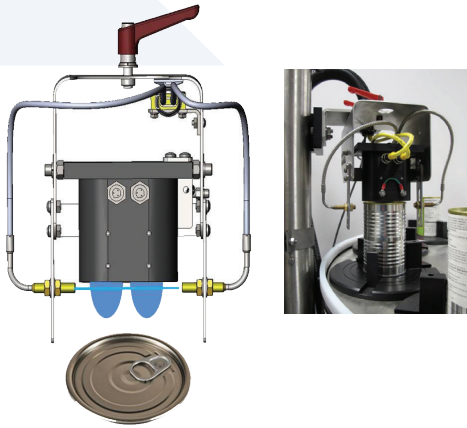
**Proximity Technology ▲**

Proximity technology measures pressure or vacuum in containers with metal closures by measuring the lid deflection. The sensor produces a continuous magnetic field that monitors the distance between the sensor and the metal lid. The continuous signal is digitally sampled to produce a merit value of the lid profile. The profile value is then compared to user set limits. Containers with lid deflection outside these limits are rejected.



### Twin Proximity Sensor

For low/no vacuum bi-metal EZopen can ends  
 Detects low vacuum and no vacuum steel cans with EZopen can ends (pull-tabs) at production line speeds up to 525 feet per minute.



### Compression Sensor (C)

For flexible plastic containers  
 Compression technology detects and rejects leaking and damaged flexible containers. Used to test non-pressurized plastic containers for leaks. The sensor is available in standard or low profile configurations.



### Dual Compression Sensor (DSC)

For flexible plastic containers  
 The TapTone DSC sensor can inspect a wide variety of flexible containers for micro leaks. The design incorporates our patented dual sensor technology and is available in standard or low profile configurations.



## NON-PRESSURIZED CONTAINERS

P

C or CLP

DSC or DSC-LP

Metal

Plastic

Plastic

EZ Open/ Bi-Metal Ends

Vacuum

Leak (>.508 mm/.020 in)

Leak (>.152 mm/.006 in)

N

Y

Y

T550, PRO Series

T550

PRO Series

Floor/Conveyor

Floor

Floor

Stainless Steel

Stainless Steel

Stainless Steel

2,000 Containers/Minute Maximum

1,500 Containers/Minute Maximum

106 m/minute (300 ft./min) Maximum

30.5 cm (12 in)

72 cm (28.5 in)

121 cm (47.5 in)

### Twin Proximity Technology ▲

The system is designed with twin proximity sensors suspended over the customer's existing conveyor system. As the can passes through the system, with the pull-tab in different orientations the twin proximity sensors scan the EZ open can end and measure the can lid deflection on each can. Signal processing is performed using the latest in high speed DSP (digital signal processor) technology. The signal processor is controlled by our PC software user interfaces with Ethernet capabilities for high speed streaming data or system monitoring and control. Our high speed proximity sensors provide accurate measurements at speeds up to 2000 CPM.

### Compression Technology ▲

Compression technology detects and rejects leaking and damaged flexible containers. As a container passes through the system, dual parallel belts apply force to the sidewalls of the container. This action compresses the headspace of the container which allows a sensor to take a force measurement at the discharge of the system. Utilizing DSP technology, the controller analyzes the measurement and assigns a merit value to each container. If the merit value is outside of the acceptable range, a reject signal activates a remote reject system.

### Dual Sensor Compression Technology ▲

Dual Sensor Compression technology detects and rejects leaking and damaged flexible containers at production line speeds up to 300 feet/minute (1.5 meters/second). The system is designed with dual parallel belts suspended over the customer's existing conveying system. As the container passes through the system, the dual parallel belts apply force to the sidewall of the container. This action compresses the headspace of the container that allows a comparative measurement to be taken at both the infeed and the discharge of the system.

### Dual Compression Sensor – Twin Belt (DSC-TB)

Dual compression inspection on pouch-style containers

The PRO Series Dual Sensor Compression Twin Belt (DSC-TB) sensor is patented technology designed to identify and reject leaking pouch style containers caused by defects in the seams or fitment closure.



### Force Sensor (F)

Pressure inspection on plastic or metal containers

The TapTone Force (F) system will detect leaks and low pressure in LN2 dosed and carbonated containers with internal pressure up to 3.1 bar (45 psi). Optional sensors can be added for additional inspections.



### Force Stainless Sensor (FS)

High pressure, high speed pressure inspection

The TapTone FS system will detect leaks and low pressure in LN2 dosed and carbonated containers and aerosol cans with internal pressure up to 11 bar (160 psi). The TapTone FS is manufactured with a stainless steel transport deck and reinforced frame for extra rigidity in high pressure applications.



## PRESSURIZED CONTAINERS

DSC-TB

Plastic

Leak

N

PRO Series

Floor

Stainless Steel

1,500 Containers/Minute Maximum

136 cm (53.5 in)

F

Metal

Plastic

Pressure Maximum 3.1 bar (45 psi)

Y

T550

Floor

Stainless Steel

91 m/minute (375 ft. /min) Maximum

53 cm (21 in)

FS

Metal

Plastic

Pressure Maximum 11 bar (160 psi)

Y

PRO Series

Floor

Stainless Steel

159 m/minute (525 ft. /min) Maximum

54 cm (21.25 in)

### Dual Compression Sensor – Twin Belt Technology ▲

The TapTone PRO Series Pouch Inspector system operates in much the same manner as the DSC. The patented system is designed with a dual pair of parallel belts for better handling and testing of pouches. The parallel belts apply force to the sidewall of the pouch increasing the internal pressure of the pouch. A comparative measurement is taken between the infeed and the discharge of the system. The comparative measurement eliminates typical variations seen in the production environment (Fill Level, Product, Temperature, and Seal width).

### Force Technology ▲

Force technology is designed to find leaks and low pressure in LN2 dosed or carbonated containers. As a container passes through the system, dual parallel belts transport the container past a sensor that measures the tension on the sidewall of the container. This action allows the system to measure the pressure inside the container and automatically reject all containers that fall below or above the acceptable pressure range.



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# User Interface Options



## T550

Acoustic Sensor, Proximity Sensor, Fill\_xr, Fill\_ir, Force, Compression, and Twin Proximity Sensor

Recently redesigned and updated, our new T550 user interface can operate up to three primary inspection sensors simultaneously and will incorporate up to four optional inputs as well. The interface has a color touch screen icon driven display with preset programs for quick product changeover. Display on-screen histograms for product monitoring or system diagnostics. Uses a USB drive for easy upgrades and additional storage of product presets.



## PRO Series-Single Line Inspection

Proximity sensor, Fill\_xr, and Twin Proximity Sensor

The PRO Series user interface is a PC based system with the DSP board mounted inside. This interface was designed for our high throughput proximity and x-ray fill level customers. The PRO Series interface utilizes an industrial grade touch screen PC offering easy icon driven menu set up and enhanced data logging to a flash card or USB drive. The interface can communicate and operate more than one sensor simultaneously. This system supports remote diagnostics via Ethernet.



## PRO Series-Multiple Line Inspection

All sensors

TapTone's "plug and play" user interface, the PRO Series user interface is PC based. Unlike all TapTone's other systems, the DSP boards for this system are mounted inside the individual PRO Series sensors, rather than inside the user interface. Multiple independent sensors can be connected and viewed simultaneously from a single PRO Series user interface. PRO Series sensors can be mounted on a single production line or on multiple production lines, saving both space and cost.

## Optional Sensors

### TDLC Sensor

Pressure Inspection for Foil and Film Sealed Containers

The TDLC sensor takes a pressure measurement from the top of the container on the seal rather than on the sides yielding a more sensitive measurement on certain container types. This sensor can be configured on our C, DSC, F, and FS Sensors.



### TDLC Technology

The TDLC sensor takes a pressure measurement from the top of the container on the seal rather than on the sides yielding a more sensitive measurement on certain container types. The sensor can be configured on compression and force systems for inspection of standard or low profile containers with foil or film seals.

|                        |   |
|------------------------|---|
| TapTone Model Number   | TDLC                                      |
| Container Types        | Plastic                                   |
| Primary Inspection     | Leak                                      |
| User Interface Options | T550, PRO Series                          |
| Sensor Mounting        | Over Belts                                |
| Sensor Construction    | Stainless Steel                           |
| Inspection Speed       | Dependent on sensor speed (C, DSC, F, FS) |
| Line Space Requirement | N/A                                       |

## Proven Technologies, Industry Expertise

With over 50 years of experience in the packaging industry, Teledyne TapTone can help you stay competitive in today's changing market climate. TapTone systems are uniquely designed for rapid product changeover to accommodate the ever evolving requirements of consumer packaged goods. With a global focus on quality and cost control, there has never been a better time to add a TapTone inspection system to your production line.

TapTone has package inspection options for:

- Glass, Metal, and Plastic Containers
- Leak, Vacuum/Pressure, and Fill Level
- Individual Containers or Cases

# Case System

## Case Inspection for Metal Cans or Glass Jars with Metal Closures

The PRO Series Case system is designed for non-contact, non-destructive, 100% automatic container inspection through a sealed cardboard and/or shrink wrapped case. The system offers the option of acoustic or proximity technology to inspect glass jars with metal closures or metal cans for pressure or vacuum after the containers have been sealed in the case. In many applications, the PRO Series Case system will detect defects other than low pressure or vacuum. Some examples are missing containers, containers with missing lids or broken bottles, flat sours and damaged cans.

### Features

- 100% non-contact inspection
- Large PC touch screen
- Graphic screen shows defects in case
- Acoustic and Proximity sensor heads (up to 6 heads)
- Quick set sensor bridge for easy product changeover
- Speeds up to 250 cases per minute
- NEMA 4x, stainless steel, water wash down (user interface enclosure and control enclosure)

### Applications

- Vacuum/Pressure inspection in metal cans
- Vacuum/Pressure inspection in glass jars with metal closures
- Missing cans
- Broken or missing glass jars



## Case System Configuration

The PRO Series Case system is a self-standing system that can be configured as follows:

- Proximity inspection: 1-6 proximity sensor heads (single bridge)
- Acoustic inspection: 1-6 acoustic sensor heads (single bridge)
- Combined acoustic/proximity inspection (one acoustic bridge and one proximity bridge)

The system includes a six-foot inspection conveyor for warehouse or other off-line applications. Spray markers can also be added \*(optional) to mark the location of the faulty containers within the case for easy identification and rework. The system can be ordered without the conveyor for on-line applications.

\*Spray Marker head option supports up to 4 Heads Maximum



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**Note:** Features and specifications subject to change without notice.

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