

# Achieve the highest level of food safety and quality



Thermo Scientific Sentinel Multiscan Metal Detector for demanding packaged product and bulk conveyor applications



# The metal detector technology you've been waiting for

The Thermo Scientific™ Sentinel™ Multiscan Metal Detector utilizes an innovative new technology to overcome the limitation of fixed single or dual frequency metal detectors that can miss metal contaminants hidden in product signals.

Multiscan technology scans a combination of up to five user-selectable frequencies from 50 to 1000 kHz. This enables users to identify contaminants that are up to 70 percent smaller in volume than previous technologies, including the Thermo Scientific APEX 500 metal detector, thus reducing the probability of an escape to near zero. It is like having five metal detectors in one.

## Complete flexibility for the highest level of food safety

All metals whether iron, stainless steel, brass or aluminum react differently to an electromagnetic field. Their reaction changes based on shape, size, orientation and position. The small signal from the metal contaminant can hide inside of a much larger signal from a wet, salty or high mineral content product. Add to this unwanted electrical interference and vibration effects and you have the potential for metal foreign objects to go undetected.

The Sentinel detector offers an entirely new approach to this challenging problem. You no longer must pick the "best" frequency for an application or try running some combination of fixed dual frequencies. Instead, you select 1, 2, 3, 4, or 5 frequencies, use a step-by-step wizard to set up your product and test any/all the types of contaminants

of concern to see which frequencies work best. The Sentinel detector immediately shows what is happening at each frequency such as signal levels, detections and changes in phase angle. No guesswork is needed. If one frequency seems to be doing all the work, simply adjust it to see if you can do better. If there is noise on a frequency or it doesn't provide protection in your application, disable it. It is that easy, fast and flexible. Do anything with any product at any time.



Sentinel shows exactly what a product and various contaminants are doing, taking the guesswork out of optimizing your application.

## Color touchscreen

A high-intensity, washdown, color touchscreen combined with easy-to-use software reduces training and operation time.



## Protective cover for touchscreen

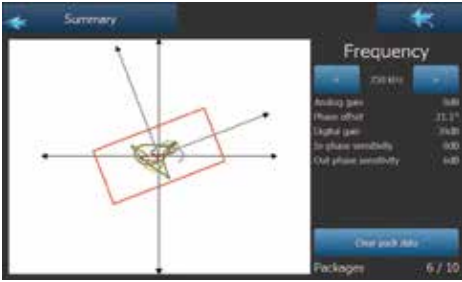
To protect from accidental damage – an optional polycarbonate flip-up cover is available.

## Built-in USB port

Save/restore programs, off-load statistics and update software with a memory stick.

## Integral power supply and I/O

Unlike other metal detectors, there are no separate boxes to wire in and mount. All power and I/O functions are self-contained, making mounting faster and more flexible.



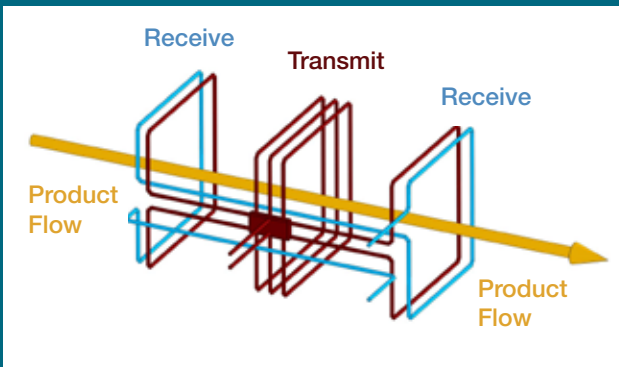
Advanced Sentinel display showing product signals, sensitivity and phase for each frequency to help optimize performance or aid in troubleshooting.

## Software that helps get your job done

In today's fast-paced, right-sized world everyone is busy all the time balancing never-ending demands. A metal detector that can be set up, adjusted and diagnosed in minutes not hours is indispensable. The Sentinel software was designed with this goal in mind.

New products can be automatically set up with one button. A step-by-step wizard with graphical feedback guides you along the way.

Need to figure out fast if there is a change in production that led to false rejects? Sentinel features a reject report showing recent history and even has a real-time display showing the deviation between actual and learned phase angle. Using this information, simply jump right to the set-up screen you want, press auto or make an adjustment and go back to an optimized state. At the end of the month you can transfer production data to a USB to save or analyze it. You can even view it in pdf form right on the Sentinel screen.



## Multicoil design

A unique coil design maximizes the metal signal while minimizing the overall size of the metal detector. Each aperture size has a computer-optimized design.



## IP69K tested and certified

The entire system is designed for high pressure sanitation. An optional lexan protective cover provides added protection for the touchscreen.

## Wide array of conveyors available worldwide

To assure system performance and lifetime, Thermo Fisher offers conveyors designed and built in North America, Europe and Asia.



## Application and metal detection specifications (Sentinel 5000 model)

Frequency Range	50 to 1000 kHz, Multiscan runs up to five frequencies
Sensitivity	Detects contaminants up to 70% smaller in volume than APEX 500 (subject to application testing)
Foot Pattern and Aperture Placement	Same as APEX 500 Metal Detector for easy upgrade
Aperture Sizes*	Width: 75 to 2000 mm, Height: 75 to 600 mm. Increments of 25 mm up to 200 mm and 50 mm above 200mm
Construction	Stainless steel 304 straightline finished case and front panel, HD option utilizes 316 stainless steel. Optional three aperture liner styles for harsh washdown and high temperature applications.
Metal Free Zone	1.5-2X smallest aperture dimension, can be reduced with optional flanges
Human Machine Interface (HMI)	7 in (178 mm) diagonal, high-intensity color touchscreen
Product Speed	0.5 m/min (1.7ft/min) to 80 m/min (262 ft/min). Encoder input highly recommended.
Output Types	8 relay outputs; 250 volt AC 2 amp max. 50 volt DC 1 amp max 8 digital sourcing (PNP) outputs, 24VDC with capacity of any two at 500 mA, the rest at 30 mA average each
Output Allocation (Software Selectable)	Reject 1, Reject 2, Fault, Alarm, Warning
Input Types	8 Inputs; Active 24VDC switch selectable as NPN or PNP
Input Allocation (Software Selectable)	Speed Sensor, Infeed Photo Eye, Reject Confirmation 1 and Bin Full, External Alarm, External Reset
Help-Text Languages	English

\*Not all combinations are possible, contact Thermo Fisher for details.

## Environmental, electrical and operational specifications

Metal Detector Ambient Temperature	-10° to +40°C (+14° to +104°F)
Product Temperature in Aperture	-10° to +55°C (+14° to +131°F), HD option maximum 40°C (104°F), PVDF option maximum 120°C (248°F)
Maximum Washdown Temperature	55°C (131°F), HD option 65°C, PVDF liner option cannot be washed down (dry applications only)
Relative Humidity	20% to 80% non-condensing, one way breather valve standard
Electrical Requirements	100 volts to 240 volts AC single phase plus earth ground; 50 Hz to 60 Hz, 0.6 to 1.2 amps
USB Port	Watertight USB 2.0

## Conformance tests and certifications

Protection Ratings	IP69K, HD option includes thermal shock protection
Export and Safety	cCSAus, CE
Manufacturing Quality	ISO9001 certified

## Features and benefits

- Multiscan frequency flexibility to optimize performance in any application
- Easy-to-use touchscreen with set-up wizards to reduce set-up time
- Detailed graphical displays for phase, rejects, quality test, and detection thresholds to enable easy fine tuning and troubleshooting
- IP69K for severe washdown and dust, eliminating repair costs
- All electronics are integral, so mounting is easy and flexible
- All balance functions are implemented in software, so no need for manual hardware rebalance in the field
- Wide ambient temperature range assuring reliability
- Fe, non-Fe and 316 SS test pieces included to fit specific application

## Available options

- Welded field compression flanges to reduce metal-free zone in limited space applications
- HD construction for thermal shock caused by cleaning, includes 316 stainless steel construction
- High temperature PVDF liners for hot products
- Heavy-duty flip up polycarbonate control panel cover for extra protection
- LED alarm/fault lights and horn
- Remote control panel mounting with optional tilt feature
- Thermo Fisher designed and built conveyors in North America, Europe and China
- Mounting and conversion kits for other metal detectors

Find out more at [thermofisher.com/SentinelMD](http://thermofisher.com/SentinelMD)