

Sentinel 4000 Pipeline System

Metal gets **detected**.
Food production stays **protected**.



Introduction

Producers of foods such as jams, sauces, condiments, and other viscous fluids need to be sure that their products are safe to consume and free of foreign contaminants. Throughout processing, any foods that are sliced, blended, mixed, or chopped with metal equipment need to be carefully checked for any pieces of mixing blades, worn components, or other metallic fragments that might have entered the production stream at these critical control points. This inspection for physical contaminants can be especially challenging when dealing with viscous and viscoelastic food products, which require controlled, continuous flow while remaining securely contained during inspection. Food manufacturers need a product inspection system that delivers the highest probability of detecting metal contaminants while being reliable and easy to use.

The Thermo Scientific™ Sentinel™ 4000 Pipeline System addresses these issues by providing high-sensitivity detection, including in high-temperature applications, to increase the probability of finding ferrous, non-ferrous, and stainless steel metal contaminants in emulsions, creams, and other viscous food products. With its horizontal layout, the Sentinel 4000 pipeline system, or Sentinel 4000P, allows product to flow smoothly through the aperture while its advanced detection technology provides the contaminant detection necessary to help producers stay compliant with industry safety standards.

The Sentinel 4000P system features Multiscan technology with up to five user-selectable frequencies of detection. This delivers a high probability of detection with world-class reliability. Whether your facility is working with thick emulsions like mayonnaise and mustard, soft colloids like fruit spreads, or more fluid and/or high-temperature products like broths and soups, the Sentinel 4000 pipeline system provides outstanding levels of food safety and brand protection while keeping your production line moving at a rapid pace.

Features

The Sentinel 4000 pipeline system is ideal for the inspection of jellies, sauces, or emulsions. With its horizontal orientation, the pipeline keeps viscous or viscoelastic food products contained as they flow through the aperture to be inspected for metallic contaminants. Its Multiscan detection technology, with up to five user-selectable frequencies, delivers a very high probability of detection along with excellent reliability, so users can be confident contaminants will be spotted before they escape the production line. The technology used in the Sentinel 4000 pipeline system identifies foreign particles that are up to 40% smaller in size than its predecessor, the Thermo Scientific™ APEX™ 300 Metal Detector, could detect. Together these features of the Sentinel 4000P system provide a higher probability of metal contaminant detection, leading to increased food safety and improved brand protection.

- An easy-to-use 7 in. modern color touchscreen with setup wizards reduces set-up time, and the controls allow simplified harmonized operation aligned with the Sentinel platform.
- Standard Ethernet and USB connections enable communications via the Modbus™ serial protocol, permitting easy reporting, diagnostics, and remote maintenance to maximize uptime.
- The Sentinel 4000P metal detector comes with an IP rating of IP69K.
- Detailed graphical displays show phases, rejects, quality test results, and detection thresholds to enable seamless fine tuning and troubleshooting.
- All electronics are integral, so mounting is easy and flexible.
- All balance functions are implemented in the software, and thus there is no need for manual hardware rebalance in the field.

Options

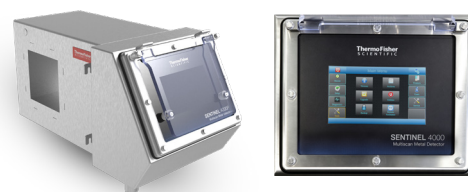
Versatility is vital to any production operation, and the Sentinel 4000 pipeline system comes with options that manufacturers can select to meet their needs.

- The system is available in standard, heavy duty (HD), and high temperature (HT) specifications. The HD model is available in a stainless steel 316 housing with a softer epoxy fill to mitigate thermal shock, while the HT model can handle products at temperatures up to 107°C (225°F) and use a sanitary hose rated to 250 psi.
- It can operate at relative humidity levels ranging from 20% to 80%, making use of a one-way breather valve to prevent unwanted condensation.
- A number of test pieces, made of Fe, non-Fe or 316 SS materials, are included to fit specific applications.
- Product flow rate (when passing through metal detector head) up to 492 L/min (130 gallon/min).
- The Sentinel 4000P metal detector is an effective upgrade to our earlier model APEX 300 metal detector; your system can be easily replaced in the field.

Additionally, the Sentinel 4000 pipeline system has the capacity to operate across a wide ambient temperature range (-10 to +40°C), and all construction materials are FDA-approved.

Isolation transformers added on to the power conditioner shield the metal detector from power line disruptions. These contribute to the system's reliability, making the Sentinel 4000 pipeline system an ideal choice for finding and rejecting metal contaminants from your jellies, emulsions, or other viscous food products.





Ordering information

Category	Specifications
Aperture size	75x75 mm, 100x100 mm, 125x125 mm, 150x150 mm
Certifications/compliance	cTUVSUDus, CE
Communications	Standard Ethernet and USB for QA report logging via Modbus serial communications
Construction	304 stainless steel straight-line finish case, and 304 stainless steel control panel, epoxy filled aperture, bead blast 304 stainless steel frame and reject assembly HD: Stainless steel 316 and softer epoxy fill for thermo-shock HT: Includes an HT liner made of PVDF rated up to 80°C (176°F) washdown temperature
Electrical requirements	100 volts to 240 volts AC single phase plus earth ground; 50 Hz to 60 Hz, 0.6 to 1.2 amps. Line supply should be noise free.
For use with (applications)	Metal detection: Liquids, pastes, slurries, and other pumpable products moving through enclosed pipelines
IP rating	IP69K
Input allocation	8 user defined 24V inputs with 10 allocatable options (Reject1 Confirm, External Alarm 1, External Alarm 2, External Alarm 3, Clear Alarms, Reject1 Complete, Reject Suppression, Reject2 Confirm, Reject2 Complete, Door Closed)
Operating temperature	Metal detector head ambient temperature: -10 to +40°C (+14 to +104°F) Metal detector full system ambient temperature: -10 to +40°C (+14 to +104°F) Product temperature STD model: -10 to +55°C (+14 to +131°F), 30 psi Product temperature HD model: -10 to +40°C (+14 to +104°F), 30 psi Product temperature HT model: -10 to 120°C (14 to 248°F); 250 psi with sanitary hose and HT liner Maximum washdown temperature (head and control panel): +80°C (+176°F) Maximum pipeline system product temperature dependent on type of pipe/hose
Output allocation	8 user defined 24V outputs with 9 allocatable options (Reject1, Reject2, AlertWarning, AlertAlarm, AlertShutDown, NotInspecting, QACheckOverDueLamp, AuditCheckOutput, Door Control)
Relative humidity	20% to 80% non-condensing with one way breather valve
Speed	19 to 492 L/min (5 to 130 gal/min); a custom option of longer extension spool is available for higher speed
Languages	English, Spanish, French, German, Italian, Chinese, Czech, Russian, Polish, Thai, Korean, Brazilian Portuguese
Product type	Metal detector
Unit size	Each

The Sentinel 4000 pipeline system for metal detection for viscous and semi-solid food products is designed to help manufacturers increase customer safety, improve product quality, and drive production efficiency.

Learn more at thermofisher.com/sentinelpipeline

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