



# Instrumentation and Automation for the Process Industries

Thermo Scientific Bulk Weighing and Monitoring

# Optimize Your Bulk Material Handling

Our line of Thermo Scientific™ industrial in-motion weighing, inspection, monitoring and control equipment is used for process control, production monitoring and automation.

It features conveyor belt scales, weigh belt feeders, tramp metal detectors, level indicators, conveyor safety switches and a variety of other specialty process control instruments for the coal and minerals mining, cement, construction, aggregates, electric utilities, chemical processing, plastics and food industries, among others.

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# Conveyor Belt Scale Systems

We are one of the world's largest providers of conveyor belt scales and electronic integrators. The rugged construction and leading edge designs of our belt scale systems have ensured reliable performance and provided unmatched versatility for over 60 years. All of our belt scale systems let you monitor production output and inventory, or regulate product loadout, while providing vital information for the effective management and efficient operation of your business.

## **Thermo Scientific™ Ramsey™ IDEA belt scale**

This belt scale system provides basic rate information and totalization functions in processes involving non-critical or lower value materials with an accuracy of  $\pm 1\%$ . It is available in either single or dual module configurations and its highly compact design makes it ideal for operations where economy and ease of installation are important considerations.



## **Thermo Scientific™ Ramsey™ Series 20 belt scale**

This system monitors feed to crushers, mills, screens and other processes with an accuracy of  $\pm 0.5\%$ , even in the most demanding industrial applications. It is designed for general in-plant belt conveyor weighing and lets you monitor production output and inventory, or regulate product loadout.



## **Thermo Scientific™ Ramsey™ Series 17 belt scale**

This belt scale system is specifically designed for plant and process operations that run at high rates of speed or require high accuracy. Its unitized multi-idler weighbridge permits more scale-borne time, which minimizes alignment errors, allowing this model to be offered as a highly accurate  $\pm 0.25\%$  scale system. This system is available in a two or four-idler version.



## **Thermo Scientific™ Ramsey™ Series 14 belt scale**

This system is specifically designed for high accuracy or basis-of-payment applications requiring certification by government and regulatory agencies. It is extremely accurate to within  $\pm 0.125\%$  and is the most widely certified belt scale in the world. It has received its Certificate of Conformance in the United States as issued under the National Type Evaluation Program (NTEP) of the National Conference on Weights and Measures. Outside of the U.S., it is certified by OIML and EEC Class I standards. It represents the world standard of accuracy and performance for loadout, inventory monitoring and fee-holder type applications.



### Thermo Scientific™ Ramsey™ Flex Scale Integrator

Ramsey Flex integrator provides the intelligence to the weighing system allowing accurate production monitoring, inventory tracking and controlled product load-out. Ramsey Flex integrators convert the input from the digitizer into material flow and total conveyed mass. A single Ramsey Flex integrator can manage the inputs from two scale digitizers, i.e. two individual scales.

Integrator options:

- Field mount with HMI touchscreen
- Panel mount with HMI touchscreen
- Blind field mount

Ramsey Flex integrators come standard with a web-based interface allowing you to monitor and manage your belt scale system from your network PC.



### Thermo Scientific™ Ramsey™ Flex Scale Digitizer

Ramsey Flex digitizers take the output signal from the weighbridge load cells and speed sensor to the electronic integrator, providing a more robust and reliable signal than standard junction boxes.



### Thermo Scientific™ Ramsey™ 61-12 Digital Belt Speed Sensor

This sensor is the most reliable and accurate speed-sensing device ever developed for belt scale service. Direct-coupling the sensor to the conveyor tail pulley, snubbing roll or a large diameter return roller ensures accurate belt-travel readout. Its rugged, cast-aluminum housing makes it suitable for outdoor installations. It comes equipped with an AC pulse generator, so there are no brushes to adjust or replace.



# Weightbelt Feeders

Precise feeding of process materials is often critical to maintaining product quality. A feeder that weighs accurately and reliably can reduce material waste, help maintain blend consistency and increase profits. We have over 50 years of experience designing and manufacturing weighbelt feeders. Every feeder is designed to meet the specific needs of an application. We work closely with our customers to ensure that each system meets their expectations for performance and dependability.

## **Thermo Scientific™ Ramsey™ Model 90.125 Mid-Range Weighbelt Feeder**

This weighbelt feeder's unique cantilevered and formed channel frame design provides a strong and sturdy weigh structure and allows for quick and easy maintenance. It accommodates flow rates of approximately 0.5 metric tons (0.5 tons) per hour up to 91 metric tons (100 tons) per hour, and belt loadings of 15 kg/m (10 lb/ft) to 170 kg/m (72 lb/ft).



## **Thermo Scientific™ Ramsey™ Model 90.150 Low Capacity Weighbelt Feeder**

This weighbelt feeder provides a consistent flow of material, offers increased sensitivity for more accurate weighing of the lightest materials, and permits quick and easy cleaning and maintenance. Its stainless steel construction provides improved corrosion resistance and washdown capabilities. It accommodates flow rates as low as 54 kg (120 lb) per hour up to 22,680 kg (50,000 lb) per hour, and belt loadings of 3 kg/m (2 lb/ft) to 30 kg/m (20 lb/ft).



### **Thermo Scientific™ Ramsey™ Micro-Tech 9105 Weighbelt Feeder Controller**

The Micro-Tech 9105 Weighbelt Feeder Controller incorporates the weighing integrator and PID/P.E.I.C. control logic into one device. The weighbelt feeder controller integrates the load cell signal from a scale / weighbridge and the input from a speed sensor to provide a true weight and a total weight fed. The electronics also provide output signals, improved communication and the ability to upload and download information via USB for greater control and blending purposes.



## Tramp Metal Detectors

### **Thermo Scientific™ Ramsey™ Oretronic Tramp Metal Detectors**

This tramp metal detector minimizes lost production by providing an economical and reliable means to protect expensive crushers, conveyors and other process equipment from damage by tramp metal. It can detect all types of metallic scrap, including bucket teeth, manganese steel mantles, bore crowns, bar scrap chains, tools and more.

Because the Ramsey Oretronic IV is insensitive to materials with high magnetic permeability and electrical conductivity, it can be used in applications where conventional metal detectors produce an unacceptable false alarm rate. It is designed especially for belt conveyors moving coal, iron pellets, minerals, aggregates and other bulk materials.



# Conveyor Monitoring and Safety Products

We offer a variety of components for monitoring conveyors and other bulk material handling equipment. These devices monitor operating processes for potentially hazardous conditions and activate an alarm when they occur. This helps to keep your personnel safe, your equipment from being damaged, your time from being wasted, and your profits from becoming losses.

## **Thermo Scientific™ Ramsey Model 60-23P Under Speed Switch**

This switch monitors the rotational velocity of a shaft or another type of rotating equipment. It may be used on conveyor belts, bucket elevators and other types of rotating equipment.



## **Thermo Scientific™ Ramsey™ Series 60-200 Motion Monitoring Systems**

This system offers a choice of versatile and reliable packages for monitoring under-speed, over-speed and zero-speed conditions on various types of machinery and systems by sensing the speed variations of rotating parts. Mechanically coupled (shaft-driven) or non-contacting proximity type sensors are available to suit particular application requirements and design preferences. The microprocessor-based Ramsey Model 60-200 programmable motion monitor control can be used with any Thermo Scientific sensor and, in some cases, with compatible pulse output sensors from other sources.



## **Thermo Scientific™ Ramsey™ SPS Safety Pull Switch**

A safety pull cable is attached to the actuating arm of the switch and terminated at fixed mounts at either end of a conveyor. Force applied to the pull cable at any position causes the actuating arm to move into a tripped-locked position and activates an alarm from one DPDT or two SPDT micro-switches, alerting equipment circuits of the stop condition. This will stay locked until manually reset by the reset lever.



## **Thermo Scientific™ Ramsey™ ROS Belt Misalignment Switch**

This switch is mounted on the top or bottom of conveyor stringers with its actuating arm adjusted to the outside edges of the belt. If the belt skews or misaligns, contacting the actuating arm and displacing it from its vertical position, a connection is made with one or more of the

micro-switches. A 10° displacement of the actuating arm activates an alarm signal to warn of a potential shutdown, allowing the operator to make adjustments and realign the belt. A 20° displacement will activate a signal to shut down the process in order to prevent or minimize damage to the belt.



# Continuous and Point Level Measurements

## C-Level Continuous Level Measurement

This Thermo Scientific™ Ramsey™ C-Level indicator is ideally suited for inventory monitoring and process control during the load-out or filling of bins and vessels containing bulk solids or liquids. Because its unique, precision strain-gauge sensors are press-fit into the vessel's support structure, the system can operate without concern for failure or maintenance issues caused by the monitored material or process environment. This distinctive design also compensates for temperature changes that can affect the accuracy of "bolt-on" strain sensors. Accurate to within  $\pm 2\%$ , the Ramsey C-Level indicator is unaffected by corrosive or abrasive materials, uneven material discharge, build-up on sidewalls, bridging, ratholing or dusting.



## Tank Weighing Assemblies

Compression tank weighing assemblies are provided as an option with the Ramsey C-Level strain sensors. They are meant for use on smaller bins and in applications requiring higher accuracy.

## Thermo Scientific™ Ramsey™ Mercury-Free Tilt Sensor

The rugged, abrasion-resistant tilt switch is actuated when material rises to tilt the probe  $15^\circ$  or more from its vertical position. These switches are precisely positioned so that, regardless of the direction of tilt, its normally closed contacts will open. Various probe assemblies are available to suit applications utilizing an array of materials in a wide range of environmental conditions.



# Service and Support

## **We offer a complete array of services designed to help you gain a competitive advantage.**

We provide premium, customized, around-the-clock support with a guaranteed response time at a price that meets your budget. We appreciate your business and will help you obtain the maximum value of your technology investment.

We provide the training you need to get the most from our Thermo Scientific products and services. We offer certification training on our products, as well as custom training tailored to your operation-specific needs. We can also help you enhance your maintenance, troubleshooting and repair programs.

We are committed to developing new technologies and creating top-of-the-line parts, accessories and consumables that enable you to extend the capability of your products, ensure that they keep pace with advancing technology, and achieve the results you require. We can also retrofit your aging equipment to enhance its performance and functionality, eliminating the need to retrain personnel on new equipment.

The bottom line is that we are dedicated to the highest level of customer satisfaction. Our pledge is to work with you, the customer, to provide customized solutions to your specifications, needs and expectations.

## **Service Agreement**

Invest in peace of mind with a Thermo Scientific service agreement. Ensure minimum downtime, with known costs and priority response times, all tailored to your individual requirements.

- **Reduced Downtime Dramatically**  
Reduce production downtime and unnecessary product give-away through regular preventive maintenance and pre-scheduled calibration visits.
- **Flexible Coverage**  
We understand that every customer has their own unique requirements. That is why we give a choice of service agreements, ranging from quick, convenient telephone support to unlimited on-site, round-the-clock coverage.
- **Priority Response**  
Our contract customers receive priority response over non-contract customers.

- **Parts**  
Your system is a sophisticated, precision instrument. To keep it operating at maximum productivity, we recommend that you only use original manufacturers certified parts. All our parts are guaranteed to perform to our instruments' rigorous design specifications.
- **Predictable Costs**  
A service agreement provides on-site service for a specific instrument with the highest levels of response, at predictable costs allowing you to support your annual maintenance expenditure.



Find out more at [thermofisher.com/bulkweighing](https://thermofisher.com/bulkweighing)

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