

Providing a fast return on investment through improved product quality, process

efficiency and raw material savings

Thermo Scientific 21PlusHD measurement and control system

Features

- Supports up to 6 frames and 15 sensors
- 2000 point profile resolution (8000 for Biax film)
- Advanced applications controls
- Windows® operating system
- OPC link capability
- Intuitive FLEX HMI operator displays
- Integrated maintenance diagnostics
- Multiple language support

Applications

- Extrusion lines
- Biax lines
- Coating lines
- Plastics and vinyl calendering lines
- Nonwoven lines
- Building products
- Carpet coating lines
- Abrasives lines
- Glass/mineral/rock wool lines

The Thermo Scientific[™] 21PlusHD measurement and control system provides a wide range of solutions for the continuous web industry. Offering a combined suite of over forty specialized applications packages, it provides a fast return on investment through product quality, process efficiency and raw material savings.

The system consists of one or multiple scanners, sensors and a console tailored to your application. The scalable system architecture is designed for seamless modular expansion to ensure maximum profitability from the process, while low cost of ownership is assured through a combination of reliable performance and ease of maintenance.

Sensors

The 21PlusHD measurement and control system supports the full range of Thermo Scientific[™] web gauging sensor technologies such as infrared, optical, nuclear and x-ray.

The sensors are application matched to the materials in the web, the web structure and the process environment, as well as the measurement requirements such as thickness, basis weight or moisture. All of our sensors are designed to provide fast, high-resolution measurements without compromising sensor precision.

The Thermo Scientific[™] Beta Plus basis weight transmission sensor provides data across the entire web width. The Thermo Scientific[™] X-Ray Master thickness and weight measurement sensor is also available where x-ray is preferred over nuclear. Both basis weight sensors are designed to provide fast, high-resolution measurements with great sensor precision.

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Complete solutions for basis weight and thickness measurement

Our infrared measurement technology provides a unique set of solutions for a wide range of materials. The Thermo Scientific[™] PROSIS[™] IR thickness sensor is designed for both single and multilayer polymer structures. This includes the thickness or weight measurement of individual layers in a coextruded multi-layer product, complex coated product, laminated product, nonwoven, cavitated films of varying density and many others. Besides thickness, it can simultaneously provide measurement of moisture content, binder content, or % retained solvents.

There is one other non-contact sensor available. The Thermo Scientific[™] ShadowMaster direct thickness sensor can be used to provide total thickness measurement of flexible materials and foam structured products.

Operator stations

Operator stations are available for either line side or control room operations, depending on process requirements. Both include touch-screen flat panel monitors with high-resolution graphics and powerful processing capability for the system's interactive displays and supervisory controls. The operator stations are PC-based and communicate with other system modules across an Ethernet Local Area Network (LAN).

Thermo Scientific FLEX operator interface

Process visibility, ease of interpretation and operational responsiveness are assured with the system's intuitive human-machine interface (HMI). The Thermo Scientific[™] FLEX operator interface includes recipe management, HMI displays, automatic control initiation, quality and process alarm annunciation, process analysis monitoring, system maintenance and diagnostics.

The system supports optional de-facto links to programmable logic controllers (PLC) such as Allen Bradley, Modbus and Siemens. Specific link products are also available as options for both information and control purposes. An OPC interface is available with the 21PlusHD measurement and control system to communicate data with other compliant systems.

Advanced application controls

A complete portfolio of Thermo Scientific[™] Advanced Application Controls is available to improve quality, productivity and raw material savings. These include machine direction, cascaded, profile and target optimization controls.

The 21PlusHD measurement and control system incorporates many applicationspecific control algorithms for fast attenuation of process upsets. These control strategies can greatly leverage the potential benefits of the system when interfaced to suitable process actuators.



Profile with edge zoom



3D contour view







Slit roll summary



SPC control charts

Thermo Scientific[™] Machine Direction (MD) control maintains the average thickness or weight of the product to a desired value at the end of each scan by supervising either the line speed or screw speed setpoints. Enhanced MD controls for biax processes include cascade strategies that supervise the cast-end average sheet target to control the final film weight or thickness. Also, plastics and rubber controls are available with three-zone cross direction strategies including roll-screwdowns, roll-bend and cross-axis control.

Thermo Scientific[™] Target Management Control (TMC) provides further process optimization potential for raw material savings by supervising the average weight or thickness target to a minimum acceptable quality value, commonly referred to as down-gauging.

Thermo Scientific[™] Auto Profile Control (APC) maintains flat thickness, shape or weight profiles of the final product by supervising the heating power of the extrusion die bolts at the cast end of the process. Features such as Accelerated Time Response (ATR) and randomization for gauge band reduction further enhance APC performance.

Instrument Performance Management

Thermo Scientific[™] Instrument Performance Management (IPM) Software provides predictive services to reduce the occurrence of unplanned maintenance. It is a cloud-based service platform that intelligently identifies critical issues in near real-time through 24/7 monitoring of the health, status and performance of gauging systems. In the event an incident arises, notifications are automatically sent to our Technical Support Team to initiate troubleshooting and fast restoration of performance. IPM Software provides advanced diagnostic capabilities to support root cause analysis and easy access to service logs, historical data, trending and process analytics. With full visibility and transparency into instrument performance, it enables faster repair, maintenance of process uptime and greater productivity. Access to IPM Software is included as part of a Product Support Agreement (PSA) to provide an easy and convenient way of working.



Intelligent measurement

Each scanning frame is part of an intelligent network and performs its measurement and control functions with an iBox that is based on a Pentium[®] class processor. Thermo Scientific[™] scanner platforms include high performance, medium sized, C-frame and single beam for single-sided applications.

The design of the Thermo Scientific[™] MKIII and Thermo Scientific[™] L400 industrial scanners incorporates a proven rigid tubular steel exoskeleton structure that provides stability while isolating the internal components from hostile environments such as high temperature, moisture, dust and fiber.



Mark III industrial scanner

The single-sided Thermo Scientific[™] Box Beam scanner is a unique design for back-scatter sensors. This closed-beam mount is intended for demanding applications such as compact, hostile and dirty environments.

The Thermo Scientific[™] Integra scanner combines a rugged scanning platform with a lower profile design for tight installation spaces. The entire beam structure is welded, heat treated and precision-machined for measurement accuracy and sensor alignment.



Integra scanner

The Thermo Scientific[™] C-frame scanner is available for installations with restricted space, harsh environments, or when all of the measurement hardware must be retracted from the machine. It can be configured for upright or suspended mounting, horizontal, vertical or angled passes lines.



C-frame scanner



Thermo Fisher Scientific, Erlangen, Germany is ISO Certified.

Learn more at thermofisher.com/gauging or email us at sales.gauging@thermofisher.com

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