Guardian-HD Series

MOISTURE, COAT WEIGHT & FILM THICKNESS MEASUREMENT

PROCESS SENSORS® CORPORATION
a KPM brand

Continually Scan Web Widths to Analyze Important Quality Parameters

OVERVIEW

The Guardian-HD Web Profiling Series is a rugged and world-class analyzer to measure moisture, coat weight, adhesive thickness, and web temperature for all paper, film, and web-converting processes. It provides a non-contact, non-destructive on-line measurement of a complete zoned web profile, helping operators reduce quality issues caused by improper moisture control, including edge curl and lay flat challenges. This translates to improved quality and consistency, less waste, and a quick return on investment.

Hundreds of web-converting operations trust the Guardian-HD Web Profiling Series to identify production inefficiencies. They help operators control moisture and coat weight parameters within one-tenth of a percent to meet product specs every time. Moisture and coat weight measurements from the Guardian-HD Series can be made on many substrates for wet-end and dry-end application processes.

APPLICATIONS

The Guardian-HD Series is the optimal moisture and coat weight control system that serves a diverse array of applications for the web converting market.

- Moisture and coatings on paper webs
- Thickness of hot melts
- Thickness of pressure sensitive adhesives
- Thickness of water-based adhesives
- Paper pulp
- Plastic film thickness
- Biax film
- PVB & EVA film
- Exit and inlet dryer moisture measurement
- Cast film
- Coated abrasives
- Wax coatings
- Extrusion coatings on paper/foil
- Moisture in corrugated board
- Textiles
- Pattern coatings (move and park)
- Flexible packaging
- Flooring

GUARDIAN-HD FEATURES

- Rugged, sealed industrial frame and linear actuator withstands hot and humid environments common with paper and converting processes
- Automatic edge detection senses roll width to streamline set-up processes, and realigns to accommodate web drift
- Configurations available to monitor and control multiple Guardian-HD systems simultaneously
- Easily connect to closed-loop control systems or local alarms

Guardian-HD Series

SELECT THE GUARDIAN-HD FOR YOUR OPERATION

Whether you are measuring simple product quality parameters on a single web, or seeking in-depth information across multiple zones, there is a Guardian-HD configuration that is right for any web converting operation. Each Guardian-HD is custom built for its operation, providing non-contact, non-destructive on-line measurements.

GUARDIAN-HD BASIC

An entry-level, single-scanner operation to measure moisture, coat weight, and temperature (optional)

- **Product recipe codes:** Up to 50
- **Total zones across the web for analysis:** Up to 16 with optional data bus interface output
- **Software:** Non-Windows®-Based software, allowing for optional USB raw data-logging capabilities to save data in user-friendly file formats
- **Display:** 5.7" high-resolution non-Windows®-based display

GUARDIAN-HD ESSENTIAL

Single-scanner operation with advanced functionality to measure moisture, coat weight, and temperature (optional), along with lane (move & park) and machine direction measurements

- **Product recipe codes:** Up to 100
- **Total zones across the web for analysis:** Up to 50
- **Software:** Non-Windows®-Based software, allowing for optional USB raw data-logging capabilities to save data in user-friendly file formats
- **Display:** 12" high-resolution non-Windows®-based touch screen display

GUARDIAN-HD ELITE

Central monitoring of single or multiple Guardian-HD systems

Advanced roll reporting and raw data-logging capabilities for traceability and audits

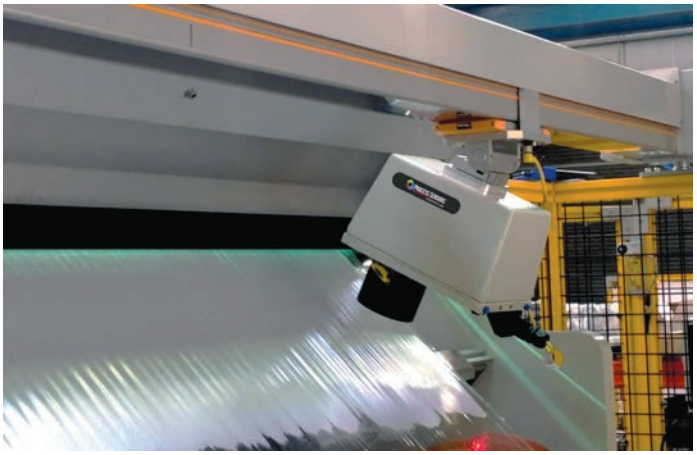
- **Product recipe codes:** Up to 100
- **Total zones across the web for analysis:** Up to 100
- **Software:** Industrial PC with proprietary ViewerSuite software
- **Display:** Windows®-based 19" touch screen along with an additional 5.7" touch screen display for local monitoring

Guardian-HD Series

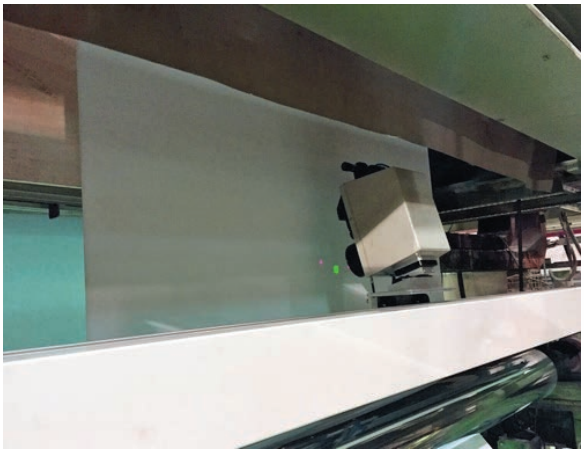
TOTAL CONTROL OF IMPORTANT WEB PROFILING PARAMETERS

Each Guardian-HD features a near-infrared (NIR) sensor that is connected to a traversing frame to continually scan the full width of a web profile for moisture and coat weigh parameters. Real-time data is presented on an easy-to-understand touch screen display for cross detection web profiling, lane and machine direction measurements.

Every Guardian-HD frame is custom-built for its specific application. The NIR sensor can also be positioned in different ways to accommodate reflective surfaces, as well has horizontal, vertical, and underside viewing.



Guardian-HD Scanning Paper



Guardian-HD Scanning Film

GUARDIAN-HD ELITE: MANAGE A NETWORK OF GUARDIAN-HD SYSTEMS

Only Guardian-HD Elite users have access to powerful features to monitor and control single or multiple Guardian-HD systems simultaneously. The Windows®-based ViewerSuite software provides enhanced capabilities that allows operators to make on-the-fly adjustments to their settings with ease and manage multiple frames on a single screen. This provides significant productivity savings, helping larger web-converting operations control moisture and coat weight properties of a wide range of materials at once.

- Complete roll recording including measurement value, date, time, length, product name, etc.
- Web scan average and individual zone measurements
- Automatic sync of roll reports to a local network

The white line indicates the moisture profile of the last scan

Manage multiple Guardian-HD systems at once

CONFIGURATIONS

Part Number	Description
500-000-BASE	Guardian-HD Basic unit assembly. NIR sensor, traversing frame, 5.7 in. U.I. display
500-000-ESSE	Guardian-HD Essential unit assembly. NIR sensor, traversing frame, 12 in. U.I. display
500-000-ELITE	Guardian-HD Elite unit assembly. NIR sensor, traversing frame, 19 in. Windows-based & 5.7 in. U.I. displays

ACCESSORIES

Part Number	Description
230-000A-S	Hi/low moisture-only calibration check standards
240-094A	Ethernet IP interface
240-199A	ModBus TCP/IP interface
240-021A-460	Internally mounted product temperature kit
240-141A	Stack light assembly
500-195A	Background reflector assembly

SCANNING FRAME

Outputs:	• 3x 4-20mA Selectable sources • Live NIR Value • Scan NIR Average Values • Live Temperature & Scan Temperature Average Value
Inputs	• Web Break • Web Length • Cooling Air • Sensor Window Purge
Ambient Temperature:	0-50°C (32-120°F) with air cooling up to 80°C (160°F)
Options:	• Data Bus Interfaces • Simultaneous Temperature Measurement • Stack Light Alarm

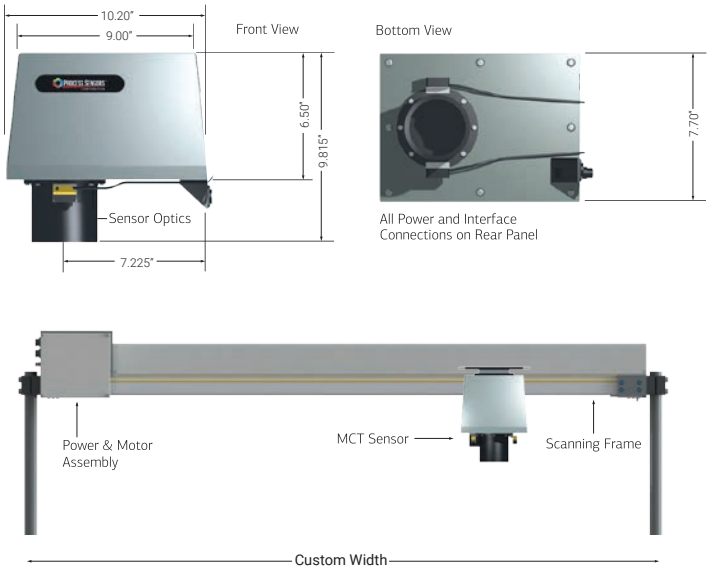
OPERATOR INTERFACES

ELITE Touch Screen PC: Windows-based, Cross Web Profile Displays, Machine Direction Trends, Scan Average Trends	
Profiles:	3
Constituents:	Up to three (2 NIR plus product temperature)
Communication to Frame:	Ethernet
Power:	90-260VA
Multi Frame Operation:	19" Screen (Larger Options Available) & 5.7" Screen
ESSENTIAL 12" Touch Screen: Non-PC based, Single Frame Operation, Cross Web Profile, Machine Direction Trends	
Profiles:	2
Constituents:	Up to two (2 NIR, or 1 NIR and product temperature)
Communication to Frame:	RS485
Power:	24VDC from Frame

NIR MEASUREMENTS

Moisture Range:	Min 0.1%, Max 95%
Coatings Range:	Min 0.1 GSM, Max 250 GSM
Moisture Accuracy:	±0.1%
Coatings Accuracy:	±0.1 gr/m
Repeatability:	±0.1%

GUARDIAN-HD DIMENSIONS



KPM Analytics
8 Technology Drive | Westborough, MA 01581 USA
Phone: +1 774.399.0500
www.kpmanalytics.com | sales@kpmanalytics.com

©Copyright 2022. All rights reserved. 04.005.0219.EN.v2.2